Undergraduate Catalog 2017/2018

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About the Catalog

Publications

Undergraduate Catalog: The current undergraduate catalog, and previous editions, are available on this site.

Graduate Catalog: The graduate catalog is available online at: www.gradschool.umd.edu/catalog. For additional information, call 301-405-0376.

Registration Guide: The registration guide outlines registration dates and procedures, and provides information on deadlines, fees, and other student services at the university.

The registration guide and schedule of classes are available at www.registrar.umd.edu.

The Online Catalog

Welcome to the University of Maryland Undergraduate Catalog website. The Undergraduate Catalog provides information pertaining to undergraduate academic programs, including course descriptions and program requirements, and sets forth the university's academic, registration and graduation policies and regulations. A listing of University of Maryland policies and procedures is available at http://www.president.umd.edu/policies/. Program requirements contained in the Undergraduate Catalog supersede any information which may be contained in any bulletin of any school or department. This Undergraduate Catalog also contains hyperlinks to other informational resources at the University of Maryland. The information contained in these hyperlinks is provided as a convenience to the reader and is not part of the Undergraduate Catalog itself.

The provisions of the Undergraduate Catalog are not to be regarded as a contract between the student and the University of Maryland. The University reserves the right to change its policies, rules, regulations, requirements for graduation, course offerings, tuition, fees, other charges, or any other contents of this catalog at any time.

Changes are effected from time to time in the general policies, and academic and graduation requirements. The Undergraduate Catalog will be updated to reflect such changes, as appropriate, but updates may not appear immediately. There are established procedures for making changes that protect the institution's integrity and the individual student's interest and welfare. A curriculum or graduation requirement, when altered, is not normally retroactive unless the change is to the students' advantage and can be accommodated within the span of years normally required for graduation.

About the University

Academic Calendar 2017-2018

Fall Semester - 2017

First Day of Classes	August 28 (Monday)
Labor Day	September 4 (Monday)
Thanksgiving Recess	November 22- 26 (Wednesday-Sunday)
Last Day of Classes	December 11 (Monday)
Reading Day	December 12 (Tuesday)
Final Exams	December 13-19 (Wednesday-Tuesday)
Commencement - Main/College/Department Ceremonies*	December 19 (Tuesday)
Commencement - College/Department Ceremonies*	December 20 (Wednesday)

**See http://commencement.umd.edu for any updates.*

Winter Term - 2018

Classes Begin	January 2 (Tuesday)
Dr. Martin Luther King Holiday	January 15 (Monday)
Classes End	January 22 (Monday)

Spring Semester - 2018

First Day of Classes	January 24 (Wednesday)
Spring Break	March 18-25 (Sunday-Sunday)
Last Day of Classes	May 10 (Thursday)
Reading Day	May 11 (Friday)
Final Exams	May 12-18 (Saturday-Friday)
Senior Day	May 19 (Saturday)
Commencement - Main Ceremony*	May 20 (Sunday)
Commencement - College/Department Ceremonies*	May 21 (Monday)

**See http://commencement.umd.edu for any updates.*

Summer Term - 2018

Sessions I and I-A Begin	May 29 (Tuesday)
Session I-A Ends	June 15 (Friday)
Session I-B Begins	June 18 (Monday)
Independence Day Holiday	July 4 (Wednesday)
Sessions I and I-B End	July 6 (Friday)
Sessions II and II-C Begin	July 9 (Monday)

Session II-C Ends	July 27 (Friday)
Session II-D Begins	July 30 (Monday)
Sessions II and II-D End	August 17 (Friday)

All dates are potentially subject to change. Updates and future academic calendars can be viewed at www.provost.umd.edu/calendar/.

Accreditation

The University of Maryland, College Park is accredited by the Middle States Commission on Higher Education (MSCHE), http://www.msche.org/, under the authority of the U.S. Department of Education. In addition, individual colleges, schools, and departments are accredited by a number of other groups:

Accreditors Approved by U.S. Secretary of Education: Academy of Nutrition and Dietetics, Accreditation Council for Education in Nutrition and Dietetics; American Psychological Association, Committee on Accreditation; American Speech-Language-Hearing Association, Council on Academic Accreditation in Audiology and Speech-Language Pathology; American Veterinary Medical Association, Council on Education; Council on Education for Public Health; National Association of Schools of Dance, Commission on Accreditation; National Association of Schools of Music, Commission on Accreditation; Commission on English Language Program Accreditation.

Other Accreditors: American Association for Marriage and Family Therapy, Commission on Accreditation for Marriage and Family Therapy Education; American Library Association (ALA); Association to Advance Collegiate Schools of Business (AACSB); Council for the Accreditation of Educator Preparation (CAEP); Accreditation Board of Engineering and Technology (ABET); Accrediting Council on Education on Journalism and Mass Communications (ACEJMC); Institute of Food Technologists; Landscape Architecture Accreditation Board (LAAB); Maryland State Department of Education (MSDE); National Architectural Accrediting Board (NAAB); National Association of Schools of Public Affairs and Administration; Planning Accreditation Board.

Evaluated Rather Than Accredited:
Maryland Sea Grant College (National Sea Grant Review Panel), Water Resources Center (United States Department of the Interior, U.S. Geological Survey).

For more information about Accreditation see
http://www.provost.umd.edu/Academic_Planning/Accreditation.htm

Campus Administration and Deans

College Park Administration

President **Wallace D. Loh**

Senior Vice President and Provost **Mary Ann Rankin**

Vice President for Student Affairs **Linda Clement**

Vice President for Administration and Finance **Carlo Colella**

Vice President for Information Technology and Chief Information Officer **Eric Denna**

Interim Vice President for Research **Amitabh Varnshey**

Vice President and General Counsel **Michael Poterala**

Vice President for University Relations **Peter Weiler**

College Park Administrative Deans

Associate Provost and Dean for Undergraduate Studies **William A. Cohen**

Interim Dean of Libraries **Babak Hamidzadeh**

Associate Dean and Chair, Department of Veterinary Medicine, Maryland Campus **Siba Samal**

Interim Dean of the Graduate School **Jeffrey Franke**

Chapter 1. Requirements and Application Procedures

ADMISSION TO LIMITED ENROLLMENT PROGRAMS (LEP)

The University has taken steps to limit enrollment in certain majors in order to maintain high-quality programs. These majors include business, engineering, journalism, biological sciences, biochemistry, chemistry, environmental sciences and policy (biodiversity and conservation), communication, criminology and criminal justice, government and politics, and psychology. Students should check the LEP website at www.lep.umd.edu or contact the Coordinator for Admission and Limited Enrollment Programs at 301-314-8385 or lep@umd.edu for updated information.

Freshmen: Admission of new freshmen to some LEPs is highly selective. LEPs with highly selective admission for freshmen include business, engineering, biological sciences, biochemistry, and chemistry. Because space may be limited for a particular major, early application is encouraged. Freshmen who are directly admitted to an LEP will be subject to a performance review when they complete 45 college credits. The review varies from program to program, but always includes satisfactory performance in a set of appropriate courses. Students not passing the review will be required to choose another major. See the academic program description for specific details.

Freshmen not directly admitted to an LEP may be assigned to Letters and Sciences. Students are not guaranteed admission to an LEP at a later date, although they may gain admission by meeting the requirements outlined in their particular program. See the following section on LEP transfer admission and the LEP program descriptions for further details about this option.

Transfers: Prospective transfer students and current UMD students wishing to change their major to an LEP must meet a set of gateway courses with minimum grades and obtain the required GPA in order to be considered for admission to the program (space limitations may apply). Additional information for each of the LEPs may be found in the descriptions of academic majors in Chapter 7.

Transfer students who are not directly admitted to an LEP upon application to the university will be assigned to Letters and Sciences. Those with fewer than 60 credits will be assigned to Letters and Sciences, and will be allowed the opportunity to meet the gateway requirements. Students with more than 60 credits will be admitted to an interim advising program in Letters and Sciences where they will be advised regarding their qualifications for the LEP and, in some cases, students will need to choose another major.

Second Major: Enrolled students interested in adding an LEP as a second major should see "Degree Requirements" in Chapter 4.

FRESHMAN ADMISSION

The University of Maryland is a publicly funded land grant institution and the flagship of the University System of Maryland. The University's Mission Statement expresses a commitment to

achieving excellence as the state's primary center for research and graduate education and the institution of choice for undergraduate students of exceptional ability and promise. Consistent with this mission, the University counts the diversity of its students among its greatest strengths and as an integral component of the educational process and a contributing factor to the academic excellence of the institution.

The undergraduate admission process, which reflects the University's educational mission, seeks to identify those applicants, who as individuals and as a group, will enrich and benefit from the campus learning environment, and thus benefit the entire student body. The process is structured to build entering classes of students whose varied backgrounds and experiences provide substantial evidence of their potential to:

1. Meet the University's requirements for academic success.

2. Enrich the University as a heterogeneous community.

3. Add new perspectives to the University's curriculum and scholarly pursuits.

4. Develop personal skills, including leadership, self-confidence, and intellectual engagement.

5. Contribute to the intellectual, cultural, social and political life of the University, state, and nation.

As the University must make fine distinctions among large numbers of highly qualified applicants, the ability to assess consistently all information presented in the application becomes increasingly important. Therefore, the University employs a rigorous review process that engages the expertise of professional educators in performing individualized and holistic evaluations of each application. Each applicant is assessed on the basis of achievements and potential in a broad range of academic categories, viewed in the context of the opportunities and challenges the applicant has faced.

These categories include:

1. Strength of educational performance, as measured by the nature and rigor of high school curriculum and academic achievements.

2. Potential for college success, as evidenced by performance on nationally normed standardized tests.

3. Potential to promote beneficial educational outcomes and to make a positive contribution to campus and community life.

4. Persistence, and commitment to educational excellence, as evidenced by demonstrated success in facing adversity and overcoming obstacles.

Application Forms

The undergraduate application and supporting documents may be completed and submitted online via the web at www.admissions.umd.edu.

Fall Semester Freshman Admission

The University of Maryland strongly encourages all applicants to apply by our November 1st priority application deadline to assure best consideration for admission, merit scholarships, and invitation to the Honors College, College Park Scholars and other living and learning programs. Admission to the University of Maryland is competitive. We typically receive more than 30,000 applications for a fall freshman class of approximately 4,100. As a result, we are unable to offer admission to all students who have the ability to be academically successful at Maryland. A completed application includes a submitted application form, official high school transcript, SAT or ACT scores, essays and activity statement, school counselor and teacher recommendations and the application fee.

Applying by the November 1st priority deadline is encouraged. For updated deadline information, please visit our undergraduate admissions website: http://www.admissions.umd.edu/apply/.

Spring Semester Freshman Admission

Students may be admitted for the spring semester by applying directly for spring admission or by having their fall application identified for spring admission through the application review process (as a result of space limitations). A completed application includes an application form, official high school transcript, SAT or ACT scores, essays and activities, school counselor and teacher recommendations and the application fee.

Applying by the priority deadline is encouraged. For updated deadline information, please visit our undergraduate admissions website: http://www.admissions.umd.edu/apply/.

Freshman Admission Deadlines:

Priority deadline: November 1st

Regular deadline: January 20th

Financial Aid Applications

The priority deadline for Financial Aid is January 1st. Students seeking financial assistance should complete the FAFSA **before** receiving their letter of admission. More information is available about Financial Aid in Chapter 2.

Early Admission Options for High-Achieving High School Students

Concurrent Enrollment: Talented high school seniors have the opportunity to enroll at the University of Maryland for two courses, or seven credits, each semester. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. To apply, students must submit: the completed application and fee; high school transcript; an essay explaining why they are interested in the program; a letter of recommendation from the high school; and a letter of permission from the parents or guardian. Students must live within commuting distance. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

Summer Enrollment: High school students with a strong high school record may be considered for enrollment in courses during the summer preceding their junior or senior year. They must file an application for admission, and submit an official high school transcript. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full. For more information, students should visit the Office of Extended Studies – www.oes.umd.edu.

Early Admission: Although the University of Maryland generally requires applicants to earn a high school diploma prior to their first full-time registration, the University will admit a limited number of well-qualified students without high school diplomas. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. Students must be within two credits of high school graduation and have the commitment of the high school to award a diploma after successful completion of the freshman year at Maryland. To apply, students must submit: the completed application and fee, high school transcript and SAT or ACT results, an essay explaining how they will benefit from the program, a letter of permission from the parents or guardian and a letter of support from the high school which details the school's agreement to award the high school diploma. Early admission students are eligible for on-campus housing, scholarships based on academic achievement, the Honors College, College Park Scholars, and other living learning programs. Early application is strongly advised.

High School Equivalency Examination (GED)

Maryland residents who are at least 16 years of age and who have not received a high school diploma may be considered for admission provided they have earned the high school General Education Equivalency (GED) certificate. In order to be considered for admission, the applicant must submit a completed application (including SAT scores if the applicant has been out of high school for less than three years) and present an above average total score as well as above average scores on each of the five parts of the test.

Non-Accredited/Non-Approved High School

Students from non-accredited/non-approved high schools who seek admission to the University of Maryland should contact the Office of Undergraduate Admissions for additional information.

Home-Schooled Students

Home-schooled applicants should meet the same minimum high school course requirements expected of all applicants. Additional information from home-schooled students is required in the following areas of the application:

Transcript: should provide course descriptions, books used, methods of evaluation, and the grades received, as well as a statement providing general information about the home-school curriculum. If college-level courses have been taken simultaneously, an official college transcript should be included with the application.

Letters of Recommendation: the University of Maryland requires two recommendations from all freshman applicants. In the case of home-schooled students these recommendations should be provided by 1) an individual acting in a supervisory or evaluative capacity with regard to the student's curriculum, and 2) from a teacher in any setting (home-school program, community college course, etc.).

Prior Learning Credit

The University of Maryland awards credit for Advanced Placement (AP), International Baccalaureate (IB), and Advanced Level (A-Level)/Advanced Subsidiary Level (AS-Level) exams when an appropriate score has been achieved. It is important to note that not all exams are awarded credit. All departments reserve the right to re-evaluate the content of exams and to change the assignment of credit and course equivalencies. There are other types of college level exams that may be awarded credit on a case-by-case basis. These include Caribbean Advance Proficiency Exam (CAPE), or Abitur. For additional information on the transferability of these exams, please see Prior Learning Credit - AP, IB, A-Level/AS-Level, CLEP, Credit-by-Exam, Basic Military Training section in Chapter 4.

GRADUATE SCHOOL

Applicants who have earned or will earn a bachelor's degree at a regionally accredited college or university in the United States (or the equivalent of a baccalaureate degree in another country) are eligible to be considered for admission to the Graduate School at the University of Maryland. Graduate School and degree program criteria for admission are available in the Graduate Catalog, available online at www.gradschool.umd.edu/catalog. For more information on graduate degree programs, financial aid for graduate study, deadlines, and online application instructions, please visit the Graduate School's website at www.gradschool.umd.edu, email gradschool@umd.edu, or call the Graduate School Information Center at 301-405-3644. Hard-copy correspondence can be addressed to the Graduate School, 2123 Lee Building, University of Maryland, College Park, MD 20742-5121.

INTERNATIONAL STUDENT ADMISSION

The University of Maryland seeks to enroll international students who demonstrate strong academic performance with records suggesting potential for success at Maryland. Admission to the University of Maryland is competitive. Typically, admission is offered to applicants whose academic credentials indicate marks of "very good" to "excellent." Due to space limitations and the competitive nature of undergraduate admission at the University of Maryland, an international applicant should submit a complete application as early as possible, and always before the deadlines listed in this section. Evaluation of an applicant's credentials will take place only after all application materials are received.

Applicants currently holding or intending to seek an F-1 Student or J-1 Exchange Visitor visa to study in the United States are considered international applicants and should observe the following instructions. All other non-immigrant visa holders (including A, E, G, H, I, and L) should follow the domestic Freshman and Transfer instructions. However, please refer to the Undergraduate Admissions website (https://www.admissions.umd.edu/requirements/EnglishLanguageProficiency.php) for more information regarding English proficiency requirements.

Freshman Admission - International
You are considered a freshman applicant if you have completed fewer than 12 semester hours of university-level credit beyond secondary school at the time you plan to enter the University of Maryland. Successful freshman applicants demonstrate satisfactory completion of diverse college-preparatory subjects in secondary school, proficiency in English, and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be successful academically at the University of Maryland.

The Fall (August) deadline for applications to be received is November 1. The Spring (January) general deadline is August 1.

For a listing of required documents, please visit our website: https://www.admissions.umd.edu/requirements/InternationalApplicants.php.

Transfer Admission - International
Students who graduate from high/secondary school and subsequently complete a minimum of 12 semester hours or 18 quarter hours during a regular term excluding summer school, at a regionally accredited college or university are considered transfer applicants. Students who complete fewer than 30 semester or 45 quarter hours are expected to submit high/secondary school records and SAT I and/or ACT scores for review. When an applicant has attended more than one institution, a cumulative average for all previous college/university work attempted will be computed and included in the review process. To be considered, course work must have been completed at a regionally accredited college or university.

Admission is competitive. Transfer applicants demonstrate better than average grades in strong academic courses, proficiency in English, and evidence of sufficient funds to cover all expenses.

Due to space limitation, we are unable to offer admission to all students who have the ability to be academically successful at the University of Maryland.

The fall priority deadline for applications to be received is March 1. The spring regular deadline is August 1st. https://go.umd.edu/AppDeadlines

For a listing of required documents, please visit our website: https://go.umd.edu/InternationalReq

English Proficiency
Non-native English speakers (regardless of citizenship) who seek admission to the University of Maryland must verify their proficiency in English by taking and submitting an official score report from one of the following English proficiency exams: Test of English as a Foreign Language (TOEFL) or International English Language Test System (IELTS). Please note that while TOEFL or IELTS scores are required to satisfy proficiency in English, the Office of Undergraduate Admissions will conduct a full file review considering all application materials submitted in the application package to make a determination about the student's level of English proficiency. Transfer credit for an English composition course from a U.S. institution does not waive the English proficiency exam. Please refer to the Undergraduate Admissions website (https://go.umd.edu/InternationalReq) for more information regarding English proficiency requirements.

Visa Requirements
Applicants Residing Outside of the United States: To enter the United States, international students residing abroad will need a passport from their government and a visa from the U.S. Consulate. In order to obtain a visa for the purposes of studying in the United States, the applicant must present a Certificate of Eligibility form (I-20) to the U.S. Consulate for non-immigrant student status. The university will issue this form to admitted students who have submitted proof of having sufficient funds to cover the cost of a program of study. Admitted students with personal, family, or other source of private funding will be issued the Certificate of Eligibility form (I-20) in order to obtain the F-1 Student Visa. Admitted students who are sponsored by agencies, foundations, or their home government, or are participating in an established exchange program may be issued the Certificate of Eligibility form (DS-2019) in order to obtain the J-1 Exchange Visitor Visa.

Applicants Currently Residing in the United States: Applicants currently holding F-1 Student or J-1 Exchange Visitor status in the United States need to submit a photocopy of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form along with proof of having sufficient funds to cover the cost of a program of study. Applicants holding another type of non-immigrant status need to submit a photocopy of their I-94 Arrival/Departure Record and visa stamp, and must indicate if they intend to seek a change to F-1 Student or J-1 Exchange Visitor status. Upon admission and submission of the appropriate financial support documentation, the university will issue the appropriate Certificate of Eligibility form (I-20 or DS-2019) to the student.

For more information, please visit the Office of International Student and Scholar Services website: http://globalmaryland.umd.edu/offices/international-students-scholar-services.

International External Exam
The University of Maryland awards credit for some Advanced Level/Advanced Subsidiary Level (A-Level/AS-Level) Exams taken through Cambridge International Exams (CIE) or other recognized organizations. There are other types of college level exams that may be awarded credit on a case-by-case basis. For additional information on the transferability of these exams, please see Prior Learning Credit - AP, IB, A-Level/AS-Level, BMT, Credit-by-Exam in Chapter 4.

OFFICE OF EXTENDED STUDIES (Summer Session, Winter Session, Freshmen Connection, Pre-College Programs, and Professional Graduate, Post-Baccalaureate, and Continuing Education Programs)

0132 Main Administration Building
Phone: 301-405-7762
Fax: 301-314-9572
E-mail: oes@umd.edu
Web: oes.umd.edu

The Office of Extended Studies administers Summer Session, Winter Session, Freshmen Connection, Pre-College Programs, and Professional Graduate, Post-Baccalaureate, and Continuing Education Programs.

Summer Session serves current UMD students, visiting students from other universities and colleges, graduates, professionals, and high school students who can satisfy a requirement, catch up on credits, and get closer to graduation. Summer Session features more than 1,200 courses that are offered morning, afternoon, evening, and online during three-week or six-week sessions.

Winter Session serves current UMD students, visiting students from other universities and colleges, graduates and professionals who can fulfill prerequisites, meet eligibility requirements for certain majors, and accelerate progress for graduation. Held in January, the three-week Winter Session features more than 350 courses that meet morning, afternoon, evening, and online.

In **Freshmen Connection,** spring-admitted freshmen begin their University of Maryland education in the fall semester, earn up to 17 university credits toward their undergraduate degree, and get on track to graduate in four years.

In **Pre-College Programs, Terp Young Scholars** (a three-week summer program) invites academically talented rising high school sophomores, juniors, and seniors to pursue academic interests, discover career opportunities, earn university credits, and explore university life during three weeks in Summer Session.
In addition, **Terp Discovery** (a two-week summer program), invites academically promising middle school students to explore education and career opportunities and learn about university life.

Professional Graduate Programs offer master degrees and graduate certificates to professionals who want to advance their knowledge and career goals.

Post-Baccalaureate Programs prepare students for professional schools, graduate programs, and professional achievement.

Continuing Education Programs include workforce training, enrichment programs, professional school exam preparation, seminars, non-credit workshops, and more.

READMISSION AND REINSTATEMENT

Students who are admitted and do not register for their first semester or cancel registration prior to beginning their first semester must apply again for admission (see Freshman or Transfer Admission). Students who are admitted as "Term Only" also must apply again for admission if they wish to register for a subsequent term. Students admitted as "Non-Degree" seeking students, who would like to become degree-seeking students, must apply again for admission (see Transfer Admission).

Students who have matriculated and registered and did not maintain that registration continuously (Fall and Spring semesters) to graduation, must apply for readmission or reinstatement to re-enroll at the University of Maryland.

See "Withdrawal and Leave of Absence from the University" in Chapter 4 for more detailed information.

Readmission
Students must apply for readmission if they interrupt registration for one or more semesters and were not academically dismissed at the conclusion of the last semester of attendance.

Reinstatement
Students who are academically dismissed from the university must apply for reinstatement. All applications for reinstatement are reviewed by a Faculty Petition Board. Students may apply for reinstatement for the semester immediately following dismissal or for any subsequent semester. Only the Faculty Petition Board can grant reinstatement.

Students who are denied reinstatement may be required to comply with specific recommendations made by the Faculty Petition Board in order to be considered for reinstatement in a future semester.

Reinstatement After Withdrawal
Students who withdraw from the university must apply for reinstatement if they interrupt enrollment for one or more semesters.

Students may apply for readmission or reinstatement at www.studentsuccess.umd.edu.

Application Deadlines (readmission and reinstatement)*

Fall: April 1st
Spring: November 1st

*Students who wish to reenroll for summer term must apply for fall reenrollment. Students who wish to enroll for winter term must apply for spring reenrollment.

Students who have been **academically dismissed** and wish to return the following semester must apply by:

- June 1st for fall enrollment
- January 6th for spring enrollment

All students are encouraged to apply early in order to take advantage of early registration.

Summer School
Students who are dismissed or withdraw at the end of the fall semester are not eligible to attend Summer Sessions unless or until they are approved for reinstatement. Students dismissed at the end of a spring semester may attend any Summer Sessions prior to being reinstated, provided the student registered for Summer Session courses prior to dismissal or withdrawal, or has applied for reenrollment.

Winter Term
Students who are dismissed or who withdraw at the end of the fall semester may attend Winter Term prior to being reinstated provided the student registered for Winter Term prior to dismissal or withdrawal. Winter Term is offered to students who have attended during the preceding fall semester. Students with a break in attendance must be reenrolled to be eligible to attend Winter Term. Students readmitted/reinstated for a spring semester may also attend Winter Term.

Clearances
Clearances from Office of Student Conduct, the Office of the Bursar, Health Center, International Education Services and/or the Graduate School may be requested of the applicant.

Applications
Applications for readmission and reinstatement may be accessed via the web at http://www.studentsuccess.umd.edu/

Additional Information
Student Success Office, 0110 Hornbake Library, Office of Undergraduate Studies, University of Maryland, College Park, MD 20742. Email: rr-admit@umd.edu.

RESIDENCY INFORMATION

Residency Reclassification Services, 1130 Clarence M. Mitchell Jr. Building
Phone: 301-314-9596; Fax: 301-314-7915
E-mail: resclass@umd.edu
http://registrar.umd.edu/resreclass.html

Petitions, related documents and questions concerning the Board of Regents Policy on Student Classification for Admission and Tuition Purposes should be directed to Residency Reclassification Services in the Office of the Registrar.

Determination of In-State Status for Admission and Tuition Purposes: See www.usmd.edu/regents/bylaws/SectionVIII/viii270r.pdf for the complete text of this policy.

An initial determination of in-state status will be made by the Office of Undergraduate Admissions at the time a students' application for admission is considered. The determination made at that time, and any determination made thereafter, shall prevail in each semester until the determination is successfully challenged. Students may challenge their classification by submitting a timely petition to Residency Reclassification Services. Determinations are based on the residency policy and requirements. The deadline for submitting a complete petition along with all supporting documents, is the first day of the semester in which the student wishes to be classified as in-state.

The volume of requests for reclassification may necessitate a delay in completing the review process. A decision in each case will be made within 6 weeks of receipt of a complete petition and all required documentation. During this period of time, or any further period of time required by the university, any fees and charges based on the previous determination must be paid. The student is solely responsible for any late charges incurred by the residency process. If the determination is changed, any excess fees and charges will be refunded.

Students classified as in-state for admission and tuition purposes are responsible for notifying Residency Reclassification Services in writing within 15 days of any change in their circumstances that might in any way affect their classification at the University of Maryland.

SPECIAL APPLICANTS

Golden Identification (Golden ID) Program
The University of Maryland participates in the Golden ID Program. This program allows eligible senior citizens to take advantage of the wide variety of course offerings at College Park. To be eligible to participate, the individual must: be 60 years of age or older, be a legal resident of the State of Maryland, and is retired (not engaged in gainful employment for more than 20 hours a week).

Students who are interested in participating in this program must first be admitted to the University. They can apply through the Office of Undergraduate Admissions. The appropriate application fee will be accessed.

Additional information on how to apply may be obtained from the Office of Undergraduate Admissions at 301-314-8385. For more information about the Golden ID Program, go to: http://registrar.umd.edu/current/registration/golden-id.html.

Non-Degree Seeking Students
Applicants who qualify for admission but do not desire to work toward a baccalaureate degree may be admitted as non-degree seeking students.

Non-degree seeking students who have received a baccalaureate degree are advised that no credit earned while enrolled may be applied at a later date to a graduate program. These post-baccalaureate students may enroll in undergraduate courses for which they possess the necessary prerequisites, but may not enroll in courses restricted to graduate students only. Students who wish to take courses at the graduate level (600 and above) must contact the Graduate School for information concerning admission requirements for Advanced Special Student status.

Non-degree seeking students who do not have a baccalaureate degree must submit transcripts and meet regular admission standards. Transcripts are not required from students with baccalaureate degrees from a regionally accredited institution. Because of space limitation, several departments require that permission be given in advance to register for classes as a non-degree student. Please contact the Office of Undergraduate Admissions for further information.

Non-degree seeking students who wish to take classes must submit the transfer application, official transcript and a letter of permission from an academic advisor or dean at their home institution.

Returning Students
Applicants who have not attended school for more than five years should contact the Student Success Office (http://studentsuccess.umd.edu/). Veterans should also contact the University of Maryland Veterans Certification Services at 301-314-8239.

Students returning to the University of Maryland after a separation of five calendar years may petition the appropriate dean to have a number of grades and credits from courses previously taken at the University of Maryland, College Park, removed from the calculation of their cumulative grade point averages and from the credits applied toward graduation requirements. See information under "Registration, Academic Requirements and Regulations" in Chapter 4.

TRANSFER ADMISSION

Admission to the University of Maryland is competitive. Review the Admission Review Factors and Process (https://go.umd.edu/AdmissionFactors) for more information regarding our admission process. Admission is based on the overall strength of the student's academic performance and is assessed through a holistic review process as described in the Statement of Philosophy of Undergraduate Admissions.

In accordance with Maryland Higher Education Commission and Board of Regents (http://www.dsd.state.md.us/comar/comarhtml/13b/13b.06.01.02-1.htm) transfer

polices, certain applicants from Maryland public institutions are given special consideration and are admitted when space is available.

The Admission Committee considers the student's academic record and grades received in all college-level courses. Students are expected to have completed English Composition (the equivalent of UMD's ENGL101) and college level mathematics (Fundamental Studies Math or higher) for best consideration in the review process.

Students who graduate from high school and subsequently complete a minimum of 12 semester hours or 18 quarter hours during a regular term excluding summer school, at a regionally accredited college or university are considered transfer applicants. Students who complete fewer than 30 semester or 45 quarter hours are expected to submit high school records and SAT I and/or ACT scores for review. When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be computed and included in the review process. To be considered, course work must have been completed at a regionally accredited college or university. Due to space limitations, we are unable to offer admission to all students who have the ability to be successful academically at the University of Maryland.

Application Deadline Dates

Semester	***Date***
Spring Priority	August 1st
Spring	November 15th
Fall Priority	March 1st
Fall	June 1st

Transfer from Maryland Public Institutions

Currently, applicants who have attended Maryland public institutions may be admitted in accordance with the criteria outlined in the previous paragraph. The university subscribes to the policies set forth in the Maryland Higher Education Commission (MHEC) and Board of Regents transfer policies. When the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program, admission will be based on criteria developed by the university to select the best qualified students.

Articulated transfer programs are available at each Maryland public community college. An articulated transfer program is a list of courses that best prepare applicants for a particular course of study at the University of Maryland. Applicants who take appropriate courses specified in the articulated program and earn acceptable grades are guaranteed transfer with no loss of credit. Articulated transfer programs help students plan their new programs after changing career objectives. More information about ARTSYS, the articulation system, is available online at http://artsys.usmd.edu/. Applicants are encouraged to follow articulated programs to enhance their transition to the University of Maryland.

Transfer Credit

For more information on receiving transfer credit at the University of Maryland, please see the Transfer Credit section in Chapter 4.

Chapter 2. Fees, Expenses and Financial Aid

COLLEGE AND DEPARTMENTAL SCHOLARSHIPS

0102 Lee Building
301-314-9000
301-405-9265
sfa-scholarships@umd.edu
www.financialaid.umd.edu

Some UM colleges and departments offer merit-based scholarships. Most departments will only consider students who enroll for 12 credits per semester, and who have a grade point average of at least 3.0. Some of these scholarships are open to prospective freshman and transfer students. Some of them are only open to continuing UM students. For additional information regarding departmental scholarships please contact the appropriate college or department or visit http://www.financialaid.umd.edu/scholarships/.

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
Agricultural and Resource Economics
Animal & Avian Sciences
Entomology
Environmental Science and Policy
Environmental Science and Technology
Nutrition & Food Science
Plant Science & Landscape Architecture
Veterinary Medicine

SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION
Architecture
Urban Studies and Planning

COLLEGE OF ARTS AND HUMANITIES
American Studies
Arabic Studies
Art History & Archaeology
Art (Studio Art)
Central European, Russian and Eurasian Studies
Chinese
Classics
Communication
Dance
English
Film Studies
French Language & Literature
Germanic Studies
History

Italian Language & Literature
Jewish Studies
Linguistics
Music
Persian Studies
Philosophy
Roman Languages
Russian Language, Literature & Culture
Spanish Language, Literature & Cultures
Theatre
Women's Studies

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES
African American Studies
Anthropology
Criminology & Criminal Justice
Economics
Environmental Science and Policy
Geographical Sciences
Government & Politics
Hearing and Speech Sciences
Psychology
Sociology

ROBERT H. SMITH SCHOOL OF BUSINESS
Accounting
Finance
Management
Information Systems
International Business
Supply Chain Management
Marketing
Operations Management & Business Analytics
Dual BS/MS Degrees

COLLEGE OF COMPUTER, MATHEMATICAL, AND NATURAL SCIENCES
Astronomy
Atmospheric & Oceanic Science
Biochemistry
Biological Sciences
Chemistry
Computer Science
Environmental Sciences - Biodiversity and Conservation
Environmental Sciences - Environmental Geosciences and Restoration
Geology

Mathematics
Physics

COLLEGE OF EDUCATION
Human Development and Quantitative Methodology
Teaching, Learning, Policy and Leadership
Counseling, Higher Education and Special Education
5-Year BS/MEd Combined Programs

A. JAMES CLARK SCHOOL OF ENGINEERING
Aerospace Engineering
Bioengineering
Chemical and Biomolecular Engineering
Civil and Environmental Engineering
Computer Engineering
Electrical Engineering
Fire Protection Engineering
Materials Science and Engineering
Mechanical Engineering

PHILIP MERRILL COLLEGE of JOURNALISM
Broadcast Journalism
Multiplatform Journalism
Shirley Povich Center for Sports Journalism

COLLEGE OF INFORMATION STUDIES
Information Science

SCHOOL OF PUBLIC HEALTH
Behavioral and Community Health
Family Studies
Kinesiology
Public Health Science

INTERDEPARTMENTAL PROGRAMS
Chemical Physics Program
Environmental Science and Policy
Systems Engineering

RETURNING STUDENTS PROGRAM/COUNSELING CENTER
Charlotte W. Newcombe Foundation Scholarship
Gerald G. Portney Memorial Scholarship
Marilyn K. Brown Memorial Loan

UNDERGRADUATE STUDIES
Academic Achievement Programs
Air Force ROTC
Army ROTC
Asian American Studies
College Park Scholars
General Education Program
Hillman Entrepreneurs Program
Honors College
Individual Studies Program
Letters and Sciences
Maryland Center for Undergraduate Research
National Scholarships Office
Naval ROTC
Phi Beta Kappa Society, Gamma of Maryland
Phi Kappa Phi

UNIVERSITY RELATIONS
Alumni Association

EXPLANATION OF FEES

1135 Lee Building
301-314-9000
301-405-0659 fax
Financial Services Center
billtalk@umd.edu
bursar.umd.edu
1-888-313-2404

All amounts are estimated and subject to change as final approval has not been granted by the time of publication.

Mandatory Fees

Student Fees: The mandatory fee assessment for undergraduate students is based on a number of requested credit hours as follows: Students registered for 9 or more credits: $967.50 per semester; students registered for 8 or fewer credits: $451 per semester. For more information, see http://bursar.umd.edu/t_ug1718.php.

Student Activities Fee (Refundable): Charged to all undergraduate students at the request of the Student Government Association. It is used in sponsoring various student activities, student publications, and cultural programs.

Auxiliary Facilities Fee (Refundable): Charged to all students. This fee is paid into a fund that is used for capital improvement, expansion, and construction of various campus facilities such as

open recreation areas (tennis courts, basketball courts, etc.), transportation alternatives, and the Stamp Student Union. These projects are not funded or are funded only in part from other sources.

Athletic Fee (Refundable): Charged to all students for the support of the Department of Intercollegiate Athletics. All students are encouraged to participate in all of the activities of this department or to attend the contests if they do not participate.

Shuttle Bus Fee (Refundable): Charged to all students for the support of the shuttle bus transportation system.

Stamp Student Union and Recreational Fee (Refundable): Charged to all students and is used to expand recreational facilities and the Stamp Student Union services.

Recreation Services Fee (Refundable): Charged to all students specifically to support the construction and operation of Ritchie Coliseum and the Campus Recreation Center, a multi-use facility that includes basketball and racquetball courts, indoor and outdoor pools, an indoor jogging track, and multipurpose activity spaces.

Performing Arts and Cultural Center Fee: Charged to all students to support the operation of the Clarice Smith Performing Arts Center.

Telecommunications Fee: Assessed to all students living in university residence halls.

Technology Fee: Charged to undergraduate students, to support the improvement of the computer systems on campus.

Other Fees

Undergraduate Application Fee: A non-refundable fee of $75 is charged to all new applicants.

Enrollment Confirmation Deposit: All newly admitted undergraduate students who intend to matriculate in the Fall or Spring semester must submit a non-refundable $400 deposit, which is credited to their tuition charges when they enroll. Should the student decide not to enroll for the specific semester of application, the $400 deposit is forfeited and cannot be used to offset any charges, including orientation charges, the student may incur.

Students admitted for the Fall semester must submit this deposit by May 1 or within 30 days from their date of admission, whichever is later, to reserve their place in the entering class. Students admitted for the Spring semester must submit this deposit by December 1 or within 14 days of their date of admission, whichever is later, to reserve their place in the entering class.

Pre-College Orientation Program Registration Fee: $176 Freshmen (two-day program), $116 Transfer (one-day program), $66 Parent (per person).

Late Registration Fee: All students are expected to complete their registration on the regular registration days. Those who do not complete their registration during the prescribed days must pay a $20 late registration fee.

Special Fee for students requiring additional preparation in Mathematics (MATH003, 010, 011, 013 and 015) per semester: A fee of $280 is required of students whose curriculum calls for MATH110 or 115 and who do not pass the qualifying examination for these courses. This Special Math Fee is in addition to course charge. Students enrolled in this course and concurrently enrolled for nine or more credit hours will be considered as full-time students for purposes of assessing fees.

Cooperative Education in Liberal Arts, Business, and Science (UNIV098-099) Per Semester: $60

Engineering COOP Program (ENCO098-099) Per Semester: $60

Other Special Fees: The University offers a number of courses (MBA, ENTS, Chemical and Life Sciences, Animal Sciences) that have special course fees in addition to, or in lieu of, the standard tuition charges. Students are encouraged to contact the department prior to registering for the class to determine the total cost of the course.

Fees for Auditors: Fees for auditors and courses taken for audit are the same as those charged for courses taken for credit at both the undergraduate and graduate levels. Audited credit hours will be added to hours taken for credit to determine full-time or part-time status for fee assessment purposes. Special Students are assessed fees in accordance with the schedule for the comparable undergraduate or graduate classification.

Special Examination Fee (Credit-by-Exam): $30 per course for all undergraduates and full-time graduate students; credit-hour charge for part-time graduate students.

Parking Registration Fees: All students enrolled in classes at the university and who drive or park a vehicle anywhere or anytime on the campus must register to park on campus each academic year. For additional information, please refer to Department of Transportation Services.

Textbooks and Supplies: Textbooks and classroom supplies vary with the course pursued, but is estimated to be $1,250 for 2017-2018 (two semesters).

Service Charges for Dishonored Checks: Payable for each check which is returned unpaid by the drawee bank on initial presentation because of insufficient funds, payment stopped, post-dating, drawn against uncollected items, etc.

For checks up to $100: $10

For checks from $100.01 to $500: $25

For checks over $500: $50

When a check is returned unpaid, the student must redeem the check and pay any outstanding balance in the account within 10 days or late fees may be assessed and the account transferred to the Central Collection Unit for legal follow-up. Additionally, a minimum 17% collection charge is added to the charges posted to the student's account at the time the transfer is made. When a check is returned unpaid due to an error made by the student's bank, the student must obtain a letter from the branch manager of the bank or a person of equivalent status admitting the error. This letter must be submitted to the Office of the Bursar to have the service charge waived.

Overdue Library Charges: For items from the library's main circulating collections, charges are .50 cents per day per item, and recalled item fines are $2 per day. If an item is lost or mutilated, the borrower is charged the estimated cost of the item plus a processing fee to cover acquisition and cataloging costs. Different fine rates may apply to other library collections, such as reserve collections.

Maryland English Institute Fees: Students enrolled with the Maryland English Institute pay these fees in support of the Institute. The Intensive English program (UMEI001, UMEI002, UMEI003, and UMEI004*) is $6,222. The Semi-intensive program (UMEI005) is $4,812 for Undergraduate and $6,165 for Graduate. Students enrolled in the Semi-intensive program may also enroll for regular academic courses and pay the tuition and fees associated with those offerings. The program also offers courses in English Pronunciation (UMEI 006) for $2,055, Advanced Writing (UMEI007) for $3,083, and Advanced Oral Communication Skills (UMEI008) for $2,055. Interview Fee is $75 and Microteaching Fee is $100. These charges are subject to change. For more information, please refer to: http://marylandenglishinstitute.com/wpdir/dates-costs/.

Property Damage Charge: Students will be charged for damage to property or equipment. When responsibility for the damage can be fixed, the individual student will be billed for it; when responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated among the individuals involved.

Late Payment Fee: Per-semester fee of 5% for past due amount, or $10, whichever is greater, plus an additional 1.5% on each subsequent billing.

Withdrawal and Refund of Fees: Students compelled to leave the university at any time during the academic year should meet with their academic college advising office and secure a form for withdrawal. The completed form and identification card are to be submitted to the academic college advising office which will communicate results to the Office of the Registrar. Students will forfeit their right to a refund if the withdrawal action described above is not adhered to. The effective date used in computing refunds is the date the withdrawal form is filed in the academic college advising office. Stop payment on a check, failure to pay the semester bill, or failure to attend classes does not constitute withdrawal. Refund requests should be processed by students with the Office of the Bursar otherwise, any credit on the student account could be carried over to the next semester. **If a Cancellation of Registration is submitted to the Office of the**

Registrar before the official first day of classes the student is entitled to a full credit of semester tuition.

Undergraduate students withdrawing from the university will be credited for tuition and fees in accordance with the following schedule:

Prior to 1st day of classes	100%
1st 10 days of classes	80%
3rd week	60%
4th week	40%
5th week	20%
After 5th week	No refund

Note: First-semester freshmen who receive Title IV aid and who withdraw will receive a refund in accordance with federal regulations.

Prior to the first day of classes, if full-time undergraduates drop a course or courses, thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of the per-credit-hour fee for part-time students. However, if students later add a course or courses thereby changing the total number of credits for which they are registered to 12 or more, they will be billed for the difference between per-credit-hour fees paid and the general fees for full-time undergraduates.

If during the first five days of classes full-time undergraduates drop a course or courses thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of part-time charges plus 20% of the difference between the full-time fees and appropriate part-time charges. After the first five days of classes, there is no refund for changing from full-time to part-time status. Students who register as part-time undergraduate students and apply for a refund for courses dropped during the first week of classes will be given an 80% refund. No refund will be made for courses dropped thereafter.

No part of the charges for room and board is refundable except when students officially withdraw from the university or when they are given permission by the appropriate officials of the university to move from the residence halls and/or to discontinue dining hall privileges. In these cases, the room refund will be computed by multiplying the number of periods remaining by the pro rata weekly rate after adjusting for a service charge. Refunds to students having full board contracts will be calculated in a similar manner. No room and/or board refunds will be made after the 14th week of the semester. Students are reminded that reservations for room and board must be canceled by the date published in the residence hall and dining services agreement(s).

In computing refunds to students who have received the benefit of scholarships and loans from university funds, the computation will be made to return the maximum amount to the scholarship and loan accounts without loss to the university.

MERIT-BASED FINANCIAL ASSISTANCE

1135 Lee Building
301-314-9000
301-405-9265
sfa-scholarships@umd.edu
www.financialaid.umd.edu

Scholarships

Several scholarships are available to the highest-achieving students at the University of Maryland, College Park. The two types of scholarships that are available are based solely on academic or creative talent (merit-based), and those based on financial need. The eligibility criteria for the different University of Maryland merit scholarships are listed below. Please also see the list of departmental scholarships at the end of this chapter. Students are encouraged to contact the office or department responsible for selecting the recipients for more information on these programs. Current information about merit scholarships offered through the University of Maryland is also available on the web at www.admissions.umd.edu.

Banneker/Key Scholarship: The University of Maryland seeks to identify and select some of the brightest high school seniors in the nation to continue their education as Banneker/Key Scholars. There are two award levels for Banneker Key Scholarships. The first award level covers the costs of tuition, mandatory fees, room and board, and a book allowance each year for eight consecutive semesters. The second award level provides a partial scholarship to go towards tuition, and a book allowance each year for eight consecutive semesters. Scholarship recipients will also be admitted to the Honors College and will be afforded many other opportunities as they participate in intellectual enrichment programs. For full consideration, students must submit an admission application, application fee, official transcript, essay, recommendations, and official copies of SAT or ACT scores to the Office of Undergraduate Admissions by November 1st for the following academic year. Selected semifinalists are given a personal interview by the Banneker/Key Selection committee. Factors such as a candidate's involvement in community service, talents or skills, leadership, and character all play a part in the final awards. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

President's Scholarship: This award provides talented prospective freshmen with scholarship support for eight consecutive semesters. Awards ranging from $2,000 to $12,000 per year are offered to incoming freshmen. Students are selected through the admissions process with primary consideration given to academic performance in high school (high school courses and achievement), results of standardized test scores (SAT or ACT), extracurricular activities, awards, honors, recommendations, and the essay. For full consideration, students must submit a complete application for admission by November 1st. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

Deans' Scholarship: This award provides talented prospective freshmen with scholarship support for two to four consecutive semesters. Awards ranging from $1,500 for one year to

$4,500 for two years are offered to incoming freshmen. To be considered, students must submit a complete application for admission by November 1st. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

President's Transfer Scholarship: This scholarship is a two-year $5,000 per year scholarship for transfer students. Students do not have to fill out a separate application to be considered as they will be evaluated based on their application to the University of Maryland. The scholarship will be awarded to the most competitive transfer students with the strongest academic records and college grade point averages. Students who are awarded the scholarship will receive notification by mail about two weeks after they receive their letter of admission. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

Regents Scholars Program: The Regents Scholars Program recognizes the extraordinary achievement of outstanding freshmen students. New awards are made each year in the amount of full in-state tuition, mandatory fees, room, board, and a $1000 stipend. Recipients are automatically admitted to the Honors College. A select number of the top high school scholars in the state will be considered for this most prestigious award. A complete admission application, application fee, official transcript, essay, recommendations, and SAT or ACT scores must be submitted to the Office of Undergraduate Admissions by November 1st for consideration for the Regents Scholars Program for the following academic year. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

Kelly, Shipley or *Weinberg Regents Scholarship*s: In order to continue the commitment to outstanding students, the Board of Regents has designated several Regents Scholarships to be awarded to Maryland community college transfer students. To be selected for this award, the transfer student must have exceptional qualifications, including achievement of a 4.0 grade point average, completion of the associate's degree at a Maryland community college, evidence of creative and intellectual activities or scholarly potential, and have been admitted to one of the University System of Maryland institutions. The deadline for submitting the candidate's application material is May 15th. The winner may receive the scholarship for two years, totaling no more than four semesters including summer sessions. For information, contact the University System of Maryland System Office at 301-445-1992.

Transfer Academic Excellence Scholarship: These awards are available to outstanding students transferring from Maryland community colleges. The awards cover in-state tuition for four consecutive semesters of undergraduate study. To be eligible students must have completed 56 or more credits or have an Associates of Arts degree and have a cumulative grade point average of 3.5 or better. Students who have previously attended the University of Maryland, College Park, are ineligible for this scholarship. Candidate nomination forms are available in early January from the Office of Undergraduate Admissions or from community college advisors. The deadline for receipt of the application, official transcripts, and scholarship materials is March 1st. Contact the Office of Undergraduate Admissions at www.admissions.umd.edu for more information.

University of Maryland Departmental Scholarships: Some Colleges and departments at the university offer a variety of merit scholarships. Most departmental scholarships require a student

to have a minimum grade point average of 3.0 and be registered for a minimum of 12 credits per semester. For information regarding departmental scholarships, please contact the appropriate College or department.

Creative and Performing Arts Scholarships: These are competitive scholarships which are awarded annually. Primary consideration will be given to entering freshmen and transfer students from community colleges that have outstanding talent in art, dance, music, or theater. The scholarships cover in-state tuition and mandatory fees and are renewable for up to three years based upon an acceptable level of performance as defined by the respective departments. Additional application materials and information about required auditions are available directly from the Departments of Art, Dance, Music and Theatre at www.arhu.umd.edu.

Maryland State Scholarships: The Maryland Higher Education Commission (MHEC), awards both need- and merit-based scholarships to Maryland residents. There are many different programs available, including the Guaranteed Access Grant, Educational Assistance Grant, the Senatorial Scholarship, and the Delegate Scholarship. You may obtain more information about these and other awards by calling MHEC at 800-974-0203. All Maryland residents are expected to apply for State scholarship assistance. Initial application for many of the awards is made through the Free Application for Federal Student Aid (FAFSA). Please note that filing the FAFSA is sufficient to apply for most Maryland State Scholarships at UMD, although some may require additional application forms. The application deadline for most programs is March 1st. The FAFSA is available on the Office of Student Financial Aid web site at www.financialaid.umd.edu.

Scholarships from Other States: Several states have reciprocal agreements with the State of Maryland. Students who are residents of these states may receive funds for study in eligible post-secondary institutions in Maryland. Interested students should contact their state scholarship agencies for information.

Scholarship Searches: A broad range of scholarships are available from private sources. Usually, these awards are not as well publicized as state and university programs. Therefore, students should conduct a scholarship search to locate such sources. The University of Maryland offers access to several services to students to aid them in their searches. Access our website at www.financialaid.umd.edu/scholarships to use these services.

NEED-BASED FINANCIAL ASSISTANCE

0102 Lee Building
301-314-9000
301-405-9265
umfinaid@umd.edu
www.financialaid.umd.edu

Grants

The Office of Student Financial Aid (OFSA) administers several grant programs for undergraduates. Awards are made based on financial need as determined by the FAFSA. Grants do not have to be repaid. Access the Financial Aid web site at www.financialaid.umd.edu for more information.

Federal Pell Grant: This grant provides a "foundation" of financial aid, to which aid from other sources may be added. Only undergraduates who are seeking their first bachelor's degree and have exceptional need may receive a Federal Pell Grant. All undergraduates will be considered for this grant regardless of when their applications were received. Students may receive the Federal Pell Grant for less than full-time attendance, although the award will be pro-rated based on the number of credits attempted. Awards range from $606 to $5,920.

Teacher Education Assistance for College and Higher Education (TEACH) Grant: Through the College Cost Reduction and Access Act of 2007, Congress created the Teacher Education Assistance for College and Higher Education (TEACH) Grant Program that provides grants of up to $3,724 per year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families.

To receive the TEACH Grant students must complete the FAFSA, be a U.S. citizen or eligible non-citizen, enrolled as an undergraduate, post-baccalaureate or graduate student, enrolled in a coursework necessary to begin a career in teaching or plan to complete such coursework, maintain a cumulative 3.25 GPA and sign a TEACH Grant Agreement to Serve. Questions regarding the TEACH Grant Program can be directed to the Office of Student Financial Aid.

Institutional Grants: The University of Maryland (UM) grant is awarded to full-time students who demonstrate financial need and meet the OSFA priority application deadline of January 1st. The OSFA selects the recipients of this award based on availability of funds and the qualifications of the applicants. The UM grant may be awarded to undergraduates who demonstrated need and high academic achievement. The UM Grant may be awarded to any undergraduate with demonstrated need. For more information, please visit our website at www.financialaid.umd.edu.

Self-Help (Employment and Student Loan Programs)

Federal Work-Study: The Federal Work-Study (FWS) Program provides students with the opportunity to earn money to meet their educational and personal expenses. Money earned from

the FWS program does not have to be paid back. To be considered for FWS, students must meet the OSFA priority application deadline of January 1st. Pay rates depend on the level of complexity of the work, but will be at least the federal minimum wage. Like all university employees, FWS employees receive a paycheck every other week for the hours worked. Most FWS jobs are on campus, though opportunities exist through the Community Service Program for FWS students to work off campus at several Federal Government Agencies. The number of hours students may work is limited to 20 per week while school is in session and 40 per week during vacations and summer break.

Paid Internships: Students with paid internships sign a contract at the beginning of the semester that states the payment amount for the number of hours to be worked during that semester. The payment amount is advanced to the student's account at the start of each semester. This program differs from Federal Work-Study in that students receive all "wages" at the start of each semester, as opposed to a bi-weekly pay check, and those funds are applied directly to the student's account. Several offices and departments on campus, including Shuttle UM, Residential Facilities, and Dining Services, offer paid internships. Students should contact the department or office for which they are interested in working.

Loans

Federal Perkins Loan: The Perkins loan is a low-interest rate (5%) loan for students with exceptional financial need. This is a loan borrowed from the school, and must be repaid. To be eligible, students must meet the OSFA priority application deadline of January 1st. New borrowers (those who first receive a federal Perkins Loan after July 1, 1988) have a grace period of nine months after graduating or leaving school before they must begin repayment of their federal Perkins Loan(s). Interest will begin accruing at the time of repayment. This loan is interest-free while students are attending school and enrolled at least half time in a degree-seeking program.

Direct Stafford Loan: This is a low-interest-rate loan for students who attend at least half-time. Application is made through the school's financial aid office via the FAFSA. Eligibility for this loan is based on need, not credit worthiness. This loan is borrowed by the student and must be repaid.

There are two types of Direct Stafford Loans: subsidized and unsubsidized. The Direct Stafford subsidized loan is awarded to students with demonstrated financial need; this loan is interest-free while students are attending school and enrolled at least half-time in a degree-seeking program. Students who do not demonstrate financial need, or who do not demonstrate sufficient need to borrow a fully Direct Stafford subsidized loan, may borrow a Direct Stafford unsubsidized loan. The Direct Stafford unsubsidized loan is interest bearing. Students borrowing a Direct Stafford unsubsidized loan will be required to repay the principle and any interest that may accrue during school attendance. All students who want to apply for either Direct Stafford loan must complete the FAFSA. As of July 1, 2016, the Direct Stafford subsidized and unsubsidized loans for undergraduates has a 3.76% fixed interest rate. Students who graduate or drop below half-time status are granted a six-month grace period before repayment of the Direct Stafford loan is required.

The following are the maximum loan amounts per academic year: $5,500 for undergraduates with freshman status, $6,500 for undergraduates attaining sophomore status, and $7,500 for undergraduate students who attain junior or senior status. If students do not demonstrate sufficient need to borrow the maximum Direct Stafford subsidized loan, they may borrow the difference in a Direct Stafford unsubsidized loan. The maximum borrowing limit for most undergraduates is $31,000.

Direct PLUS (Parent Loans for Undergraduate Students) Loan: This is a non-need-based loan, which parents may borrow to help defray the cost of their dependent children's education. The Direct PLUS enables parents to borrow the full yearly cost of attendance (as determined by the school) minus all other financial aid. Otherwise, there is no yearly or cumulative borrowing limit. As of July 1, 2011, the student is required to complete a Free Application for Federal Student Aid (FAFSA) in order to apply for the Direct PLUS loan. After the FAFSA is completed, borrowers must submit the Direct PLUS loan application to the school for calculation and certification of the maximum loan amount that the parent may borrow per student per year. The Direct PLUS loan application can be completed with the Department of Education at www.studentloans.gov.

The Direct PLUS is granted to borrowers based on credit-worthiness as determined by the Department of Education whom the borrower selects. The Direct PLUS loan has a 6.31% fixed interest rate. The borrower has the option of beginning repayment on the Direct PLUS loan either 60 days after the loan is fully disbursed or not until six (6) months after the dependent student on whose behalf the parent borrowed ceases to be enrolled on at least a half-time basis.

OFFICE OF STUDENT FINANCIAL AID

0102 Lee Building
301-314-9000
301-405-9265
umfinaid@umd.edu
www.financialaid.umd.edu

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. The primary responsibility for financing attendance at the University of Maryland, College Park, lies with students and families. Scholarships, grants, loans, and work-study positions are awarded on the basis of academic ability and/or financial need as determined by a federal needs analysis system. It is the intent of OSFA to provide assistance to students who might not otherwise be able to pursue college studies due to financial constraints.

Financial aid funds are limited; therefore, all new, readmitted, and returning students must follow these steps to receive priority consideration for financial aid:

1. Student admissions applications and all necessary supporting documents to the Office of Admissions by the appropriate deadlines (Deadlines are listed in Chapter 1).

2. Complete the Free Application for Federal Student Aid (FAFSA) on or after **October 1**. The FAFSA is available on the OSFA web site at www.financialaid.umd.edu. A new FAFSA is required for each academic year of the student's enrollment.

New students should not wait to be admitted before filing the FAFSA. A financial aid application has no bearing on a student's admission application. However, students will not receive final consideration for aid until they are admitted to a degree program.

3. **Complete the FAFSA no later than December 15 so that it is received by the federal processor by January 1.** Applying online helps to expedite the process.

Applications received before January 1 will be given priority consideration.

General Regulations Applicable to All Forms of Aid

Full-Time Status: For most types of aid, students must attempt at least 12 credit hours through the schedule adjustment period each semester in order to receive the full financial aid award. Please refer to the standards of Satisfactory Academic Progress (SAP) when considering dropping below 12 credit hours for any given semester. Please visit the Office of Student Financial Aid website at www.financialaid.umd.edu to review the Satisfactory Academic Progress policy.

Citizenship Status: In order to be eligible for federal, state, or university financial assistance, students must be United States citizens or eligible non-citizens.

Default/Owe Refund: Students cannot be in default on an educational loan, nor can they owe any refund on a Pell Grant or Supplemental Educational Opportunity Grant (SEOG) previously awarded at any post-secondary institution.

Degree-Seeking: Students must be working toward a degree or certificate. Students must be admitted to the university as "degree-seeking."

Satisfactory Progress: Students must be making satisfactory progress toward a degree or certificate according to the Standards for Satisfactory Academic Progress (SAP) published in the Schedule of Classes. Please visit the Office of Student Financial Aid website at www.financialaid.umd.edu to review the Satisfactory Academic Progress policy.

Selective Service: To receive federal financial aid, male students must register with Selective Service if they are at least 18 years old and born after December 31, 1959, unless they are not required by law. The federal government will verify compliance of this registration requirement. Students who have questions about Selective Service registration may contact the Selective Service at 847-688-6888/1-888-655-1825 or www.sss.gov.

Receiving a Non-University Award: If a student receives assistance (scholarship or loan) from a non-university source, the university may reduce the financial aid awarded by the university. It is the student's responsibility to notify the Office of Student Financial Aid of all outside awards.

Change in Financial Situation: It is the student's responsibility to notify the Office of Student Financial Aid of any changes to his or her financial circumstances during the year.

Reapplication Requirement: Need-based assistance is not automatically renewed from year to year. All students requesting need-based aid must reapply by submitting a new or renewal FAFSA annually. Such reapplication must indicate continued financial need and maintain Satisfactory Academic Progress (SAP). Please visit the Office of Student Financial Aid website at www.financialaid.umd.edu to review the Satisfactory Academic Progress policy.

Award Policy: Financial aid is normally a combination of grants, loans, and student employment. The financial aid "package" is determined by the availability of financial aid and the financial circumstances of each student. It is not necessary to make any special application for university grants. The Office of Student Financial Aid will determine awards that best fit the needs and qualifications of the candidates.

Estimating Educational Cost

Costs of Attendance Budgets are estimates of the educational expenses incurred by students during the nine-month academic year. These budgets include direct university charges (tuition, fees and on campus room and board) and estimates of indirect expenses (transportation, books, supplies, miscellaneous living expenses, and off-campus room and board).

Off-campus cost of living expenses are determined based on the average room and board charges for the local area. These are indirect costs, not billed by the University.

Actual College Park tuition and fees can be found by contacting the Office of the Bursar (http://bursar.umd.edu/index.php).

Dependent student living on campus *(not with parent/relative)*

Tuition and Fees	
In-State: Maryland Resident	$10,372
Out-of-State: DC, other states, other countries	$32,976
Room	$7,220*
Board	$4,886*
Books/Supplies	$1,250**
Personal and Transportation expenses	$2,440**
Subtotal In-State (Tuition, Fees & Books/Supplies)	$11,622
Total In-State	$26,168
Subtotal Out-of-State (Tuition, Fees & Books/Supplies)	$34,226

Total Out-of-State	$48,772

Dependent student commuting from parents home

Tuition and Fees	
In-State: Maryland Resident	$10,372
Out-of-State: DC, other states, other countries	$32,976
Room	$1,540**
Board	$1,596**
Books/Supplies	$1,250**
Personal and Transportation expenses	$4,040**
Subtotal In-State (Tuition, Fees & Books/Supplies)	$11,622
Total In-State	$18,798
Subtotal Out-of-State (Tuition, Fees & Books/Supplies)	$34,226
Total Out-of-State	$41,402

Dependent student living off campus *(not with parent/relative)*

Tuition and Fees	
In-State: Maryland Resident	$10,372
Out-of-State: DC, other states, other countries	$32,976
Room	$9,234**
Board	$4,886**
Books/Supplies	$1,250**
Personal and Transportation expenses	$4,040**
Subtotal In-State (Tuition, Fees & Books/Supplies)	$11,622
Total In-State	$29,782
Subtotal Out-of-State (Tuition, Fees & Books/Supplies)	$34,226
Total Out-of-State	$52,386

*These figures are averages and will vary from student to student.

**They are indirect costs not billed by the bursar.

TUITION AND BILL PAYMENT INFORMATION

1135 Lee Building
301-314-9000
301-405-0659 fax
Financial Services Center
billtalk@umd.edu
bursar.umd.edu
1-888-313-2404

Tuition and fees for the University of Maryland, College Park, are listed in the next section. The university requires that all deposits and fees be paid by stated deadlines, or penalties must be imposed. Many potential administrative difficulties can be avoided if students carefully follow published procedures and notify the appropriate office(s) of any changes that might affect their financial obligation to the university. This includes updating your email address so communication concerning your billing is prompt, and notifying the Bursar's Office of changes of address so that mail affecting the student's financial relationship with the university will not be delayed or returned.

Tuition and bill payment information for Summer Session, Winter Session, Freshmen Connection and Professional Programs may be found at oes.umd.edu.

College Park sponsors a deferred-payment plan for the Fall and Spring semesters only. Information regarding the Terp Payment Plan is available by calling 301-314-9000 or 1-888-313-2404 or at bursar.umd.edu.

All charges incurred during a semester are payable immediately. Returning students will not be permitted to complete registration until all financial obligations to the university, including library fines, parking violations, and other penalty fees and service charges, are paid in full.

Payment for past due balances and current semester fees is due on or before the first day of classes. Students who register in advance must pay their bills in full prior to the general registration period. Students who register after the initial registration period are required to make full payment by the due date indicated to avoid cancellation of their enrollment and loss of their classroom seats to other students.

Although the university bills students monthly, it cannot assume responsibility for their receipt. Students are reminded that it is their responsibility to notify the University of any change in their email address. If a student bill is not received on or before the beginning of each semester, it is the student's responsibility to obtain a copy of the bill. To check your account balance or view your monthly billing statement go to bursar.umd.edu and choose "View Your Monthly Bill" or go to the Financial Service Center, 1135 Lee Building. The office is open Monday, Tuesday, Thursday, and Friday from 8:30 a.m. to 4:30 p.m. and on Wednesday from 9:30 a.m. to 4:30 p.m.

All checks or money orders should be made payable to the **University of Maryland** for the exact amount due. **Student's name and student's University ID number should be written on the**

front side of the check. University grants and scholarships will be posted to the student's account. However, the first bill mailed prior to the beginning of each semester may not include these credits.

Students are urged to check their residence hall and dining service agreements for procedures for cancellation of reservations and for deadlines for receiving refunds of deposits. Refunds cannot be made after these deadlines, even if the student decides not to attend the University of Maryland, College Park.

Students will incur a late payment fee in the event of failure to pay a balance on their student account by its due date. A late payment fee of $10.00 or 5%, whichever is higher, will be assessed in addition to the total past due amount. An additional 1.5% finance charge will be charged monthly if the account is not settled.

Students who fail to pay the indebtedness during the semester in which delinquency occurs will be ineligible to register for subsequent semesters until the debt and the penalty fees are cleared.

In the event a student with a delinquent account becomes registered for a future semester, the account must be settled in full prior to the onset of the future semester, to avoid cancellation of registration.

The state has established, under legislative mandate, a Central Collections Unit (CCU) within the Department of Budget and Fiscal Planning. The university is required by state law to refer all delinquent accounts to the State Collections Unit. Please note that Maryland law allows the Central Collections Unit to intercept state income tax refunds for individuals with delinquent accounts, and that CCU is authorized to notify a National Credit Bureau of the delinquency at the time the account is referred to it for collection.

All accounts due from students, faculty, staff, non-students, etc., are included within these guidelines.

Central Collections Unit costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17% plus attorney and/or court costs.

No degrees, diplomas, certificates, or transcripts of records will be issued to students who have not made satisfactory settlement of their accounts.

Note: Additional Information on Student Financial Obligations, Disclosure of Information, Delinquent Accounts, and Special Fees, can be found in the "Policy Statements" section at the beginning of this catalog.

Payment of Fees

In person or mailed: All checks, money orders, or postal notes should be made payable to "University of Maryland." The student's University ID number must be written on the front of the check.

Online: VISA, MasterCard, American Express, and Discover credit cards; VISA and MasterCard debit cards; and ACH (electronic checking or savings account) payments are accepted. Online payments can be made by clicking on the blue box, "Pay Online Here" at bursar.umd.edu. There is a 2% processing fee for credit and debit card payments. There is no fee for ACH payments.

UNDERGRADUATE TUITION AND FEES

1135 Lee Building
301-314-9000
301-405-0659 fax
Financial Services Center
billtalk@umd.edu
bursar.umd.edu
1-888-313-2404

An Important Fee Notice: Notwithstanding any other provision of this or any other University publication, the University reserves the right to make changes in tuition, fees, and other charges at any time deemed necessary by the University and the University System of Maryland Board of Regents. Tuition and fee information is published in the Registration Guide each semester and is also available on-line at bursar.umd.edu.

2017-2018 Academic Year *(Estimated)*

Full-time Undergraduate Students

(For billing purposes, a student is considered full-time if the number of credit hours enrolled is 12 or more.)

Maryland Residents (In-state)

	Total Academic Year Cost
Tuition	$ 8,481
Add Differential tuition for full-time juniors and seniors majoring in Business, Engineering, or Computer Science regardless of residency	*2,800*
Mandatory Fees *(includes Tech fee)* *Maximum charged to all students registered for 9 or more credits*	1,935
Board *(Resident Dining Plan - Basic)*	4,886
Room *(Standard 2-person w/AC, includes Telecom fee)*	7,220

Residents of the District of Columbia, Other States, and Other Countries

	Total Academic Year Costs
Tuition	$ 31,688
Add Differential tuition for full-time juniors and seniors majoring in Business, Engineering, or Computer Science regardless of residency	*2,800*
Mandatory Fees *(includes Tech fee)* *Maximum charged to all students registered for 9 or more credits*	1,935

Board Contract *(Resident Dining Plan - Basic)*	4,886
Room *(Standard 2-person w/AC, includes Telecom fee)*	7,222

Tuition and Fees for Part-time Undergraduate Students

(For billing purposes, a student is considered part-time if the number of credit hours enrolled is 11 or fewer)

In-State Tuition *(per credit hour)*	$ 353
Out-of-State Tuition *(per credit hour)*	1,321
Add Differential tuition for part-time juniors and seniors majoring in Business, Engineering, or Computer Science regardless of residency (per credit hour)	*116*
Mandatory Fees *(per semester)*	
9-11 credit hours *(per semester)*	967.50
8 or fewer credit hours *(per semester)*	451

For more information regarding the Differential Tuition, please go to: bursar.umd.edu/Differential Tuition FAQ.pdf.

Chapter 3. Campus Administration, Resources, and Student Services

ACADEMIC RESOURCES AND SERVICES

Academic Achievement Programs

2204 Marie Mount Hall
301-405-4736 (phone)
301-314-9162 (fax)
Executive Director: Dr. Jerry L. Lewis
www.aap.umd.edu

The Academic Achievement Programs (AAP) primarily provides resources and opportunities for low-income individuals, first generation college students, disabled students and traditionally under-represented students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Admissions

Ground Floor Clarence M. Mitchell Jr. Building
301-314-8385
Associate Vice President for Enrollment Management: Barbara Gill
ApplyMaryland@umd.edu
www.admissions.umd.edu
1-800-422-5867

The services offered by the Office of Undergraduate Admissions are designed to meet the individual needs of prospective students. The office provides general information about the University of Maryland through brochures, letters, website, electronic communication, social media, information sessions, campus tours and other personal interactions. Admissions staff evaluate both freshman and transfer applicants in order to shape the entering class of students. For more information about undergraduate admission, see Chapter 1.

Computing Services: Division of Information Technology

1221 McKeldin Library
Phone: 301-405-1500
itsc@umd.edu
it.umd.edu

The Division of Information Technology is part of a University of Maryland student's everyday academic and social life. The division plans, develops, supports, and maintains computing, networking, and telecommunications services for the university community to enhance both day-

to-day academic and business goals and to further the university's standard of excellence in education and research.

Many faculty members have integrated technology into courses, both inside and outside of the classroom. Some professors use clickers to collect student feedback during class. Through ELMS, the university's Enterprise Learning Management System (www.elms.umd.edu), instructors can provide online course materials, collect assignments, post grades electronically, and hold discussion sessions.

The university's robust wireless network gives students the ability to connect to the Internet from almost anywhere on campus. Every student living in a residence hall also has a dedicated high-speed data jack to use when connecting to the university network from his or her room. Computer labs across campus feature Windows and Macintosh environments, offer printing services (from lab or personal computers), and provide course-related software. UMD's Box service (https://go.umd.edu/umd-box) gives students 50 GB of storage space to use for backing up files, synching files on multiple devices, and collaborating with others.

Service Desk staff (itsc.umd.edu, 301-405-1500) are available to answer IT questions and provide tech support, and they can be contacted in person, over the telephone, and via live chat. The Service Desk's IT Service Center website enables you to consult an IT Library of how-to articles and a catalog of IT services, check and subscribe to service alerts, and initiate and track help requests online 24/7.

Discounts on computers and cellular devices and service are also available to University of Maryland students. Some popular software is available at no cost via downloads or subscriptions. Visit it.umd.edu/terrapin-tech for more information.

Education Abroad

1118 H.J. Patterson Hall
Phone: 301-314-7746
Fax: 301-314-9135
Ross Lewin (OIA)
educationabroad@umd.edu
www.international.umd.edu/studyabroad
Front Desk: 301-314-7473

Through Education Abroad (EA), UMD students participate in academically rigorous overseas programs designed to broaden and enrich their major fields of study, deepen their understanding of other languages and cultures, and strengthen their ability to compete for successful careers in today's global economy. These programs provide coursework in a wide range of disciplines so that participants can study abroad for a semester or academic year and still complete their degrees on schedule. A growing number of EA programs combine the concepts of global citizenship, civic engagement, and entrepreneurship by engaging students in innovative projects designed to address health, economic, and environmental issues in the communities that host them during their overseas studies.

EA collaborates with UMD faculty and staff as well as international institutions and affiliated organizations to support more than 400 international programs in over 65 countries and to integrate overseas coursework into campus curricula. Professional advisors guide students in the selection of suitable programs and the arrangement of academic credit, assist with applications for financial aid, conduct pre-departure orientations, and provide on-call support to participants overseas. Recognizing that substantive international experience is a crucial part of any undergraduate education, EA continually seeks to enable every UMD student to study abroad regardless of his or her major field of study or financial profile. EA is especially attentive to the diverse needs of the UMD campus community and is committed to developing and delivering programs and resources that facilitate access for and representation of diverse identities.

Study Abroad Process

Students interested in overseas studies should ideally visit EA one year before actually submitting an application in order to explore program options and learn more about the next steps in arranging academic credit, completing pre-requisites, and obtaining financial aid for their intended programs. When a student is prepared to begin an application, he or she should arrange to meet with an advisor by making an appointment through the on-line system at: www.international.umd.edu/studyabroad.

Types of Study Abroad Programs

Exchange programs: Exchange programs allow UMD students to study for a semester or year at leading universities throughout the world while paying little more than their regular UMD tuition, travel, and overseas living expenses. In exchange for each outgoing student, one from the overseas host university studies at the College Park campus for an equivalent period. While some exchange programs require foreign language proficiency, many are open to students who speak only English. These programs offer UMD students an outstanding opportunity to develop lasting bonds with local students. UMD students earn transfer credit applied to their UMD degree on all exchange programs.

Maryland Semester (Maryland-in), Maryland Short Term & Freshmen Abroad programs: EA directly sponsors and administers a wide array of semester and short term opportunities in partnership with UMD academic departments. These options allow students to receive UMD resident credit. These include semester programs in Buenos Aires, Copenhagen, Florence, Perugia, Nice, Seville, Berlin, Barcelona, Rome and Beijing, as well as more than 70 short term courses taught by Maryland faculty during the summer, winter term, and spring break in locations ranging from Morocco to Brazil. This also includes Terrapin Takeoff pre-freshman summer programs and Destination fall semester programs in Rome and Sydney for spring admitted freshmen. In addition to high-quality instruction, UMD programs offer cultural activities, internships, and service opportunities to help students maximize their engagement with the host-country culture.

Approved Programs and Affiliate Programs: EA administers a wide range of programs in collaboration with vetted study abroad providers and universities, including The Council on International Educational Exchange (CIEE), the Institute for the International Education of

Students (IES), The Education Abroad Network (TEAN), American Councils (ACTR), and the University Studies Abroad Consortium (USAC).

Non-Approved programs: UMD students who wish to study abroad through other institutions must petition to do so. The first step in this process is to speak with an EA advisor. Petitioners must demonstrate a compelling academic reason to participate in a non-approved program and that the program in question meets the same standards required of approved programs. EA strongly encourages students to explore its extensive list of affiliated and approved programs before beginning the petition process.

More information and applications are available at the EA website: www.international.umd.edu/studyabroad.

Honor Societies

Students who excel in scholarship and leadership may be invited to join the appropriate honor society. Honor societies at Maryland include:

Alpha Chi Sigma (Chemistry)
*Alpha Epsilon (Agricultural Engineering)
*Alpha Epsilon Delta (Pre-Med)
Alpha Epsilon Rho (Broadcast Journalism)
*Alpha Kappa Delta (Sociology)
*Alpha Lambda Delta (Freshman Scholarship)
Alpha Phi Sigma (Criminal Justice)
Alpha Zeta (Agriculture)
Beta Alpha Psi (Accounting)
Beta Gamma Sigma (Business Management)
Black Honors Caucus
*Chi Epsilon (Civil Engineering)
Delta Nu Alpha (Transportation)
Delta Phi Alpha (German)
Delta Sigma Pi (Business)
Eta Beta Rho (Hebrew)
*Eta Kappa Nu (Electrical Engineering)
*Gamma Theta Upsilon (Geography)
*Golden Key Honor Society (Leadership/Scholarship)
*Kappa Delta Pi (Education)
*Kappa Tau Alpha (Journalism)
*Lambda Pi Eta (Speech Communication)
*Mortar Board National Honor Society (Scholarship)
*National Society of Collegiate Scholars
*Omega Chi Epsilon (Chemistry Engineering)
*Omega Rho (Business)
*Omicron Delta Epsilon (Economics)
*Omicron Delta Kappa (Scholarship/Leadership)

*Order of Omega (Fraternity/Sorority Leadership)
Phi Alpha Epsilon (Health/Human Resources)
*Phi Alpha Theta (History)
Phi Beta Kappa (Scholarship)
Phi Chi Theta (Business and Economics)
*Phi Eta Sigma (Freshman Scholarship)
*Phi Kappa Phi (Senior/Graduate Scholarship)
*Phi Sigma (Biology)
*Phi Sigma Pi (Scholarship/Leadership)
*Phi Sigma Iota (French/Italian)
*Pi Sigma Alpha (Political Science)
*Phi Sigma Theta
Pi Tau Sigma (Mechanical Engineering)
*Primannum Honor Society
*Psi Chi (Psychology)
Sigma Alpha Omicron (Microbiology)
Sigma Delta Chi (Journalism)
*Sigma Delta Pi (Spanish)
*Sigma Tau Delta (English)
*Tau Beta Pi (Engineering)
Tau Beta Sigma

*Member of Association of College Honor Societies

Intercollegiate Athletics

XFINITY Center
301-314-7171
301-314-7149
Director of Athletics: Kevin Anderson
lebihara@umd.edu
www.umterps.com

The Department of Intercollegiate Athletics is responsible for directing intercollegiate athletic programs for both women and men, and for managing the campus' athletic facilities.

Women's intercollegiate athletic teams include cross country, field hockey, soccer and volleyball in the fall; basketball, indoor track/field and gymnastics during the winter; and lacrosse, softball and outdoor track/field in the spring. Tennis and golf competition is scheduled in both the fall and spring seasons.

There are men's teams in football and soccer in the fall; basketball and wrestling during the winter; and baseball, lacrosse and outdoor track/field in the spring. Golf competition is scheduled in both the fall and spring seasons.

Men's and women's intercollegiate athletic teams compete in the National Collegiate Athletic Association (NCAA) at the Division I level and in the Big Ten Conference.

Eligibility Requirements

Student-athletes must meet all NCAA, Big Ten and University of Maryland requirements for eligibility. The chart below serves **only** as a guideline to eligibility rules and does not provide complete detail. All NCAA requirements are available via www.NCAA.org.

NCAA Continuing Eligibility and Progress Towards Degree Guidelines

Year of Initial Collegiate Enrollment	Semester of Full-Time Enrollment	NCAA Requirements
Fall 2003 - present	Entering 1st semester (1st year)	Must be certified by the NCAA Eligibility Center
	Entering 2nd semester	* 6 degree applicable credits earned previous semester * 1.29 UMD GPA
	Entering 3rd semester (2nd year)	* 18 hours earned during previous regular academic year and 24 for the year earned at UMD *6 degree applicable credits earned in previous semester *1.8 NCAA GPA
	Entering 4th semester	* 6 degree applicable credits previous semester * 1.80 NCAA GPA
	Entering 5th semester (3rd year)	* declaration of degree program * 40% of degree requirement completed * 18 degree applicable credits during previous regular academic year * 6 degree applicable credits earned previous semester * 1.90 NCAA GPA
	Entering 6th semester	* 6 degree applicable credits earned previous semester * 1.90 NCAA GPA
	Entering 7th semester (4th year)	* 60% of degree requirement completed * 18 degree applicable credits during previous regular academic year * 6 degree applicable credits earned previous semester * 2.00 NCAA GPA

	Entering 8th semester	* 6 degree applicable credits earned in previous semester * 2.00 NCAA GPA
	Entering 9th semester (5th year)	* 80% of degree requirement completed * 18 degree applicable credits earned in previous regular academic year * 6 degree applicable credits earned previous semester * 2.00 NCAA GPA

**Based on 120 credit degree program*

1. Student-athletes are allowed 4 seasons of competition within 5 calendar years from the time they first enroll full-time in a collegiate institution. When they participate in any competition in their sport (including a scrimmage with outside competition), whether it is for one minute or an entire contest, they have used one of the four seasons of competition.

2. Student-athletes must be enrolled full-time to be eligible to practice or compete with their team. If a student-athlete drops below full-time, he/she will immediately be ineligible to practice or compete, and his/her athletics grant-in-aid will be revoked unless otherwise approved by the Department of Athletics. Graduating student-athletes who need less than full-time hours to complete degree requirements may receive an exception to enroll in less than full-time credit hours by completing a prescribed form available in the ASCDU and approved by the college and certification officer.

3. Student-athletes are required to meet multiple sets of academic standards in order to maintain eligibility for athletic competition. These standards are dictated by the NCAA, Big Ten Conference, and the Athletics Council. In addition, student-athletes may be required to maintain standards dictated by the college of their major for either admission into a degree program, or maintaining enrollment.

4. Transfer student-athletes must meet all NCAA, Big Ten and UMD requirements in order to be immediately eligible. Please note that in certain cases NCAA and BIG Ten eligibility requirements are more stringent than UMD admissions requirements.

5. Ineligible student-athletes are not permitted to compete or travel.

6. First semester freshman who do not meet UMD cumulative GPA requirements, may seek an appeal under certain circumstances. Transfer student-athletes are required to attain the appropriate cumulative GPA based upon the number of full-time semesters they have been enrolled in any institution.

7. Dismissed and later reinstated student-athletes are ineligible for competition until they meet designated grade point averages.

The Department of Intercollegiate Athletics (ICA) also sponsors a number of awards for

achievement in athletics and/or scholarship. For further information, contact the Academic Support and Career Development Unit (ASCDU), 301-314-7043.

International Student and Scholar Services

1126 H.J. Patterson Hall
301-314-7740
301-314-3280
Director: Susan Dougherty
http://isss.umd.edu

International students and faculty receive a wide variety of services designed to help them benefit from their experience in the United States. International Student and Scholar Services (ISSS) works closely with the Office of Undergraduate Admissions on the admission of international students. ISSS services include: university sponsorship of international students, orientation programs, immigration and employment seminars and coffee hours. ISSS advisors counsel international undergraduate students concerning immigration, personal and campus life issues.

F-1 and J-1 status students. The ISSS is the only office on campus authorized to sign immigration documents and advise on the following topics: extension of stay, transfers, off-campus employment authorization, practical training, and course loads.

Students with F-1 or J-1 status are responsible for following the regulations of the U.S. Citizenship and Immigration Service (USCIS) and the Department of State (DOS) pertaining to their visa status.

Maintaining Status

- **Full-time registration:** In order to maintain full-time student status for immigration purposes, F-1 and J-1 undergraduate students are expected to register for and complete a minimum credit load of 12 hours per semester. Pre-approval from ISSS is required if you are going to complete the semester with fewer than 12 credits.
- **Documents:** International students must have a valid passport at all times unless exempt from passport requirements. If your I-20 or DS-2109 will soon expire you should apply for an extension at least 30 days prior to the program completion date on the document. To travel outside the U.S. and re-enter as an F-1 or J-1, an advisor in ISSS must sign your I-20 or DS-2109 before you leave.
- **Health Insurance:** All undergraduate students, regardless of visa status, are required by the University Health Center to carry adequate health insurance. In addition, J-1 students must present copies of their health insurance to ISSS in order to comply with Department of State requirements.

We hope you will find the resources you need in this catalog or by visiting our office. Please contact us if we can be of any further assistance to you.

Thanks for being a part of our global UMD community!

Learning Assistance Service (LAS)

2202 Shoemaker Building
301-314-7693
http://www.counseling.umd.edu/LAS
301-314-7651

The Learning Assistance Service (LAS) is the academic support unit of the University Counseling Center. LAS provides services that support students in developing personal and academic strategies and behaviors which empower them to be successful in college and life. All LAS services are free to University of Maryland students.

Students can meet individually with our dedicated academic skills coaches to learn how to manage their time and the demands of their courses, apply efficient learning strategies, and enhance their study habits. Students are encouraged to take advantage of the full range of services provided including workshops, study tables, learning strategies courses, and Guided Study Sessions.

To schedule an appointment, call 301-314-7693 or sign up online at: https://lasonline.umd.edu. Visit our website at www.counseling.umd.edu/LAS.

Letters and Sciences

1117 Hornbake Library
301-314-8418 (phone)
301-314-9394 (fax)
Assistant Dean/Director: Deborah Reid Bryant, Ph. D.
askltsc@umd.edu
www.ltsc.umd.edu

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program. Letters and Sciences advisors help students to select and schedule courses, plan academic programs, and learn about campus-wide resources. Letters and Sciences collaborates closely with college advising offices, academic departments, and programs across campus and provides a coordinated advising network.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Maryland Center for Undergraduate Research (MCUR)

1201 (first floor) Marie Mount Hall
301-314-6786
Director: Francis DuVinage
ugresearch@umd.edu
www.ugresearch.umd.edu

The Maryland Center for Undergraduate Research (MCUR) is an initiative of the Office of the Dean of Undergraduate Studies. Created as a resource for students and faculty, the Center serves as a clearinghouse for both on-campus and off-campus research opportunities for undergraduates. Major programs of the MCUR include Maryland Student Researchers, which permits faculty to list research opportunities open to undergraduates during the academic year, and Maryland Summer Scholars, which provides funding for students to conduct summer research (on-campus or elsewhere in the US or abroad as needed) under the mentorship of a Maryland faculty member. MCUR also presents Undergraduate Research Day, a campus-wide poster event, every spring.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Maryland English Institute (MEI)

1117 Cole Student Activities Building
301-405-8634
301-314-9462
Director: Dr. Elizabeth Driver
mei@umd.edu
www.mei.umd.edu

The mission of Maryland English Institute (MEI) is to provide English language instruction and assessment at the postsecondary level for speakers of other languages who wish to learn English for academic, professional, or personal reasons. MEI fulfills its mission by providing:

- courses for matriculated University of Maryland students
- courses for international teaching assistants
- short courses for members of the campus and local community
- custom-designed programs
- evaluation of the English language proficiency of provisionally admitted students
- assessment of oral communication skills of international teaching assistants
- a full-time, multi-level Intensive English Program

MEI offers rigorous courses of study while providing a positive and supportive learning community and promoting cross-cultural understanding.

Two regular instructional programs are offered for conditionally admitted and prospective undergraduate and graduate students who are non-native speakers of English: a bridge program

for provisionally admitted students and a full-time intensive program for provisionally admitted or prospective students.

Bridge Program: Advanced English as a Foreign Language (UMEI005): This course is open only to students who are admitted to the University of Maryland. Students who are admitted as bridge program students must satisfactorily complete UMEI005 in their first semester in order to become fully admitted. UMEI005 course sections usually meet five days a week, two hours per day. The program is designed to strengthen the language skills necessary for academic work at the University of Maryland. Undergraduates may enroll in two additional courses totaling eight credits at maximum while they are enrolled in UMEI 005. No credit is given toward the university degree for UMEI 005.

Intensive English Program (UMEI001-004): This full-time English language program is open to non-native speakers who wish to improve their English for academic, professional or personal reasons.

Students may be admitted to the Intensive English Program in two ways: 1) as a result of the University of Maryland's admissions process for degree programs, or 2) through independent application directly to MEI.

There are three intensive English sessions per year: one for fall semester, one for spring, and a seven-week session in the summer. Each consists of approximately 23 hours of instruction weekly. The fall and spring programs offer five levels of instruction, beginning through advanced. The summer program offers varied levels of instruction with the opportunity to choose from a variety of electives for part of the program.

For independent applicants to MEI, satisfactory completion of the intensive program does not guarantee acceptance at the University for prospective students who enroll at MEI. Students who already have provisional admission when they enroll at MEI will matriculate into degree programs if they successfully complete the required courses.

No credit is granted toward any university degree. Tuition remission cannot be applied to MEI courses.

Oak Ridge Associated Universities

Interim Vice President for Research: Amitabh Varshney
ORAU Councilor, University of Maryland
www.orau.org

Since 1951, students and faculty of University of Maryland have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 98 colleges and universities and a contractor for the US Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about

opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science and engineering related disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at www.orau.gov/orise/educ.htm, or by calling the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Amitabh Varshney
Interim Vice President for Research
ORAU Councilor for University of Maryland

Rachel F. Lokitx
ORAU Corporate Secretary
865-241-8872

Visit the ORAU home page at www.orau.org.

OFFICE OF EXTENDED STUDIES (Summer Session, Winter Session, Freshmen Connection, Pre-College Programs, and Professional Graduate, Post-Baccalaureate, and Continuing Education Programs)

0132 Main Administration Building
Phone: 301-405-7762
Fax: 301-314-9572
E-mail: oes@umd.edu
Web: oes.umd.edu

The Office of Extended Studies administers Summer Session, Winter Session, Freshmen Connection, Pre-College Programs, and Professional Graduate, Post-Baccalaureate, and Continuing Education Programs.

Summer Session serves current UMD students, visiting students from other universities and colleges, graduates, professionals, and high school students who can satisfy a requirement, catch up on credits, and get closer to graduation. Summer Session features more than 1,200 courses that are offered morning, afternoon, evening, and online during three-week or six-week sessions.

Winter Session serves current UMD students, visiting students from other universities and colleges, graduates and professionals who can fulfill prerequisites, meet eligibility requirements for certain majors, and accelerate progress for graduation. Held in January, the three-week Winter Session features more than 350 courses that meet morning, afternoon, evening, and online.

In **Freshmen Connection,** spring-admitted freshmen begin their University of Maryland education in the fall semester, earn up to 17 university credits toward their undergraduate degree, and get on track to graduate in four years.

In **Pre-College Programs, Terp Young Scholars** (a three-week summer program) invites academically talented rising high school sophomores, juniors, and seniors to pursue academic interests, discover career opportunities, earn university credits, and explore university life during three weeks in Summer Session.
In addition, **Terp Discovery** (a two-week summer program), invites academically promising middle school students to explore education and career opportunities and learn about university life.

Professional Graduate Programs offer master degrees and graduate certificates to professionals who want to advance their knowledge and career goals.

Post-Baccalaureate Programs prepare students for professional schools, graduate programs, and professional achievement.

Continuing Education Programs include workforce training, enrichment programs, professional school exam preparation, seminars, non-credit workshops, and more.

Office of Multi-Ethnic Student Education (OMSE)

1101 Hornbake Library
301-405-5616
301-314-9512 (fax)
www.omse.umd.edu

The Office of Multi-ethnic Student Education provides programs and resources to support the academic, personal, and professional excellence of students. The mission of the Office of Multi-ethnic Student Education is directly linked to the elimination of the achievement gap at the University of Maryland. With that goal in mind, OMSE provides programs such as a walk-in tutorial program, study lab, a computer lab with disability services software, affinity groups, drop in OMSE Check Ups, the OMSE Academic Excellence Society, College Success Scholars, and a myriad of services and annual events that recognize the multiple identities of students. The

OMSE team is dedicated to our motto of high expectations, high standards and excellence.

Office of the Registrar

First Floor Clarence M. Mitchell Jr. Building
301-314-8240
University Registrar: Adrian Cornelius
www.registrar.umd.edu

The Office of the Registrar is committed to providing the highest level of customer satisfaction in all aspects of its operation, which includes coordinating course enrollment and student registration; maintaining students' permanent academic records; administering academic policy compliance; and producing official transcripts, certifications, and diplomas. Detailed information on the Registrar's Office services is published in Chapter 4 of this catalog.

Orientation

1102 Cole Student Activities Building
Phone: 301-314-8217
Fax: 301-314-1063
Gerry Strumpf, PhD
askorientation@umd.edu
www.orientation.umd.edu
Other Phone: 301-314-8212

The goal of the New Student Orientation is to introduce new students to the University of Maryland community. The Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend the University of Maryland.

For more information, see Office of Undergraduate Studies section in Chapter 6.

Pre-College Programs

4111 John S. Toll Physics Building
Phone: 301-405-6776
Fax: 301-314-9155
Executive Director: Georgette Hardy
precollege@umd.edu
www.precollege.umd.edu
Other Phone: 301-405-1224

Upward Bound Programs: 301-405-6776
Upward Bound Math and Science Program (UB-MS): 301-405-1224

The University of Maryland Pre-College Programs in Undergraduate Studies is comprised of three federally and state supported programs:
Two Upward Bound Programs (UB) and
Upward Bound-Math and Science Program (UB-MS)

These programs generate the skills and motivation necessary for success in post-secondary education. They immerse high school participants in rigorous academic instruction, tutoring, counseling, and innovative educational experiences throughout the school year and during the six-week summer residential program. Pre-College Programs are part of the Federal TRIO Programs that provide educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds.

The UB Programs are open to low-income and/or first-generation college bound high school students in grades 9 through 12, who demonstrate an academic need and want to pursue a four-year postsecondary education. Eligible students must attend target high schools in Prince George's and Montgomery Counties. High school principals, teachers, and counselors recommend students to the program.

Eligibility for the Upward Bound Programs require students attend Northwood High School in Montgomery County and Bladensburg, Central, High Point, Parkdale or Northwestern High Schools in Prince George's County.

The UBMS is open to students in grades 9 through 12, who demonstrate an academic need and want to pursue post-secondary education programs in fields related to mathematics and science. UBMS recruits high school students who have successfully completed Algebra I and attend Potomac and Fairmont Heights High Schools in Prince George's County, MD; Watkins Mill High School in Montgomery County, MD; and Bell High School in Washington, DC.

Pre-Health Professions Advising and Programs

1210 H.J. Patterson Hall
301-405-7805
Director: Wendy Loughlin; Advisor: Nick Celedon
www.prehealth.umd.edu

The Reed-Yorke Health Professions Advising Office (HPAO), part of the College of Computer, Mathematical, and Natural Sciences, serves University of Maryland students and alumni interested in pursuing careers in medicine, dentistry, or allied health fields.

Pre-Law Advising Program

0110 Hornbake Library
301-405-2793
prelawadvisor@umd.edu
www.prelaw.umd.edu

The Pre-Law Advising Office within Letters and Sciences serves all current and former students at the University of Maryland interested in pursuing law school and careers in law. The program provides students with law school planning, including individual and group advising, career preparation workshops, admission information, and much more. While law schools do not require, favor, or prefer specific majors, the pre-law advisor can provide guidance concerning the choice of major. Pre-law does not serve as an undergraduate major, nor does the program require completion of a specific academic curriculum.

Pre-Transfer Advising

0110 Hornbake
301-405-9449 or 301-405-9448
Assistant Dean: Lisa Kiely
Assistant Director: Leah Howell
Assistant Director: Megan Cleaver
transferadvising@umd.edu
www.transferadvising.umd.edu

The Pre-Transfer Advising Program promotes academic success and excellence by assessing the readiness of students who wish to transfer to UM. Pre-Transfer Advising assists students in estimating time to degree completion and advises on which courses to take prior to transfer. Advisors also serve as a resource for community college staff.

Student Success Office

0110C Hornbake
Assistant Dean: Lisa Kiely; Coordinator: Paulanne Walker; Advisor for Retention Initiatives: Peter DeCresenzo
rr-admit@umd.edu
www.studentsuccess.umd.edu

The Student Success Office is a clearinghouse for services and resources to assist students in the completion of their undergraduate degrees. This includes:

- Coordinating reenrollment
- Centralizing tutoring resources
- Managing data from exiting students
- Providing leadership on other retention initiatives

For more information, please see www.studentsuccess.umd.edu.

Tutoring

2204 Marie Mount Hall (MMH)
301-405-4745 (phone)
301-314-9794 (fax)
Christal Dimas
cdimas@umd.edu
www.aap.umd.edu

The Academic Success and Tutorial Services initiative of the Academic Achievement Programs (AAP) offers free tutoring for many lower-level general education courses, as well as several math- and science-intensive courses for all University of Maryland students. Visit MMH 2204 for a complete schedule of tutoring, study skills, math, and English sessions.

To inquire about courses offered, tutor availability, and/or additional services offered by AAP, please contact the Tutorial Coordinator at 301-405-4745, or cdimas@umd.edu. Visit http://www.aap.umd.edu/tutoring.html to learn more about schedules, job opportunities, and the mission of the Academic Achievement Programs.

Additional tutoring resources can be found at www.tutoring.umd.edu.

CAMPUS ADMINISTRATION

Academic Affairs

1119 Main Administration Building
301-405-5252
301-405-8195
Mary Ann Rankin, Senior Vice President and Provost
provost@umd.edu
www.provost.umd.edu

The Senior Vice President and Provost is the chief academic officer of the university with responsibility for guiding the academic development and direction of the institution in accordance with the University's mission. As Senior Vice President, the Provost has budgetary responsibility for campus academic programs and resources and works directly with the President on campus-wide resource allocation. The Provost oversees the development, review, and implementation of all academic policies and regulations; consults closely with the University Senate and other faculty advisory groups on academic programs and policies; and serves as liaison with other university divisions in strategic and long-range planning. The deans of the 12 academic colleges and schools report to the Provost as do the deans for Undergraduate Studies, of the Graduate School, and of the University Libraries. The director of the Institute for Bioscience and Biotechnology Research and the Executive Director of the Universities at Shady Grove, both situated in Rockville, also report to the Provost. Other major academic administrative offices that report to the Provost include: Academic Planning and Programs; Diversity and Inclusion; Faculty Affairs; Enrollment Management; Institutional Research,

Planning, and Assessment; International Affairs; Finance and Personnel; Records, Registration, and Extended Studies; the Teaching and Learning Transformation Center; and the Academy for Innovation and Entrepreneurship.

Division of Administration and Finance

2119 Main Administration Building
301-405-1105
Carlo Colella, Vice President, Administration and Finance
vpaf@umd.edu
vpaf.umd.edu

The Division of Administration and Finance develops and maintains the university's infrastructure and services. Our eight units support the University of Maryland's mission of education, research, and public service. Our operations include: Community Engagement; Environmental Safety, Sustainability and Risk; Facilities Management; Finance (which includes Business Services, Student Financial Services and Cashiering, and the Comptroller); Procurement and Strategic Sourcing; Public Safety; Real Estate and University Human Resources.

Of particular interest to students are the safety and security resources offered by the Department of Public Safety, information and billing services provided by the Office of Student Financial Services and Cashiering, and campus efforts related to community engagement and sustainability.

Equity Council

2411 Marie Mount Hall
301-405-6810
www.president.umd.edu/EqCo/
301-405-0805

The Equity Council serves as an advisory group to the President and supports the longstanding and continuous goal of the University of Maryland to be a national leader in recruiting and retaining a diverse community of faculty, staff and students. The council provides leadership in the articulation and development of affirmative action policies and procedures for the campus community. A particular focus of the Equity Council is to review and recommend, as appropriate, search and selection policies and procedures for the university and its colleges and departments. The Council consists of equity administrators from each Vice President and Dean's office and the Office of the President. The Chief Diversity Officer serves as Chair of the Council.

The current list of equity administrators at the university can be found at the Equity Council website: www.president.umd.edu/EqCo/.

Office of Diversity and Inclusion

2411 Marie Mount Hall
Phone: 301-405-6810
Fax: 301-314-9992
diverseterps@umd.edu
www.diversity.umd.edu

The Office of Diversity & Inclusion (ODI) provides active oversight, coordination, and evaluation of the University of Maryland's equity, diversity and inclusion activities; manages and tracks implementation of the Strategic Plan for Diversity; and encourages and supports the efforts of units to achieve their diversity goals. We invite you to explore our website for information about our office, its activities and programs, as well as equity and diversity initiatives on campus and beyond.

To foster "inclusive excellence," the Office of Diversity & Inclusion offers funding for diversity and inclusion initiatives that address the goals of the Strategic Plan for Diversity. Campus units and student organizations are invited to apply for annual Moving Maryland Forward Grants of up to $15,000, and for Rise Above Isms Grants of up to $750, awarded on a rolling basis.

For more information about ODI please go to http://www.diversity.umd.edu/.

Office of the President

1101 Main Administration Building
301-405-5803
301-314-9560
Wallace D. Loh, President
president@umd.edu
www.president.umd.edu

The president is the chief executive officer of the University of Maryland. Seven vice presidents, who report directly to the president, manage different divisions of the campus administration. The Department of Intercollegiate Athletics, the Maryland Fire and Rescue Institute, and the Office of Civil Rights and Sexual Misconduct report to the Office of the President. The University Senate, a representative legislative body of the university, advises the president on academic and other matters.

Office of Undergraduate Studies

2110 Marie Mount Hall
301-405-9363
Dean William Cohen
ugst@umd.edu
www.ugst.umd.edu

Associate Provost and Dean: William A. Cohen
Director of Administration and External Relations: Jacqueline Kautzer
Director of Development and Alumni Relations: Heidi Bruce
Associate Dean for General Education: Douglas Roberts
Associate Dean: Cynthia Kay Stevens
Assistant Deans: Deborah Reid Bryant, Lisa Kiely, Kathryn Robinson, Ann Smith
Director of Communications and Web Development: Mark Kuhn

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the University and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education.

Student Affairs

2108 Clarence M. Mitchell Jr. Building
Phone: 301-314-8428
Fax: 301-314-9606
Linda M. Clement, Vice President
studentaffairs@umd.edu
www.studentaffairs.umd.edu

The Office of the Vice President for Student Affairs provides administrative leadership for 14 departments which oversee student life: Resident Life, Dining Services, Residential Facilities, Transportation Services, Counseling Center, Health Center, Recreation & Wellness, Career Center, Student Conduct, The Stamp, Fraternity & Sorority Life, Conferences & Visitor Services, Parent & Family Affairs, and Development.

This office serves as a point of contact for non-academic student services and concerns. In addition, the office provides support for the Senior Council, Parents and Family Affairs, and Omicron Delta Kappa.

University Relations

3140 Samuel Riggs IV Alumni Center
301-405-4680
Vice President: Peter Weiler
www.urhome.umd.edu

The Division of University Relations encompasses a variety of units whose shared mission is to advance the goals of the University by increasing resources and support, enhancing awareness and affinity, and strengthening and developing relationships with the Maryland family and the greater community. Units of this division include Development (including school-, college- and unit-based staff, Annual Giving, Corporate and Foundation Relations), Alumni Relations, Marketing and Communications, Special Events, Donor Relations and Stewardship and the University of Maryland College Park Foundation. The *Fearless Ideas* campaign, which will be launched by University Relations in October 2017, has a goal to raise $1.5 billion in private support for University priorities such as undergraduate scholarships and faculty support. Through this endeavor, University Relations staff will encourage internal and external stakeholders to contribute toward discovering new knowledge, inspiring Maryland pride, transforming the student experience and turning imagination into innovation.

University Senate

1100 Marie Mount Hall
Phone: 301-405-5805
Fax: 301-405-5749
Director: Reka S. Montfort
senate-admin@umd.edu
www.senate.umd.edu

The University Senate, an integral part of the University's system of shared governance, has representation from all segments of the campus community: faculty, staff, undergraduate students, and graduate students. Participation in the Senate or any of its 10 Standing Committees is an honor and a responsibility.

The full Senate meets approximately nine times a year to consider matters of concern to the institution, including academic issues, university policies, plans of organization, facilities, and the welfare of faculty, staff, and students. The Senate advises the president, the chancellor, or the Board of Regents, as appropriate. To become an undergraduate student senator, students must be elected by students in their college or school or the Office of Undergraduate Studies in centralized, online elections. Elections are held every year during the spring semester. All students are also encouraged to participate in Senate Standing Committees, such as Student Affairs and Campus Affairs. These committees draw membership from the campus community at large and cover every aspect of campus life and function. Details about the election and committee volunteer processes can be found at www.senate.umd.edu.

STUDENT PROGRAMS AND SERVICES

Adele H. Stamp Student Union - Center for Campus Life

Adele H. Stamp Student Union
301-314-DESK
www.thestamp.umd.edu

The Adele H. Stamp Student Union - Center for Campus Life is the University's "community center." More than 25,000 students, faculty, staff members, and campus guests visit the Stamp daily to take advantage of its services, programs, and facilities. Our mission is to create and sustain a student-centered environment that promotes academic success and personal development; serves as a safe and inviting campus center; and is characterized by a strong commitment to multiculturalism, excellence, and a positive work environment.

The Stamp offers lounge space, a variety of information services, recreation and leisure activities, student-sponsored programs, visual arts, retail outlets, and more than 40,000 square feet of reservable space.

Information Services

- Information Center located on the first floor, 301-314-DESK or visit http://thestamp.umd.edu/event_guest_services/information_desk
- Bulletin boards located throughout the building
- Display showcases located throughout the building

Recreation and Leisure

- Terp Zone, including full-service bowling lanes, "Cosmic Bowling", billiard tables, video games, and three big-screen TVs, 301-314-BOWL or visit http://thestamp.umd.edu/terpzone.

Student-Sponsored Programs

- Student Entertainment Events (SEE), a student-directed program board whose committees plan games, tournaments, concerts, lectures, outdoor recreation trips, 301-314-8359 or visit http://see.umd.edu/.
- Graduate Student Government, 301-314-8630

Art and Learning Center

- Art and Learning Center, a visual arts work and teaching center, offering mini-courses and arts services
- Stamp Gallery, located on the first floor, 301-314-ARTS or visit http://thestamp.umd.edu/art_learning_center

Food and Retail Outlets

- Capital One Bank, 301-864-8722
- University Book Center (basement level), 301-314-BOOK
- Food Services: Maryland Food Co-op (301-314-8089), Saladworks (301-314-0947), Taco Bell (301-314-6569), McDonald's (301-314-1489), Adele's Restaurant (301-314-8022), Coffee Bar (301-314-CAFE), Panda Express (301-314-6111), Sbarros (301-314-4105), Sushi by Panda (301-314-6111), Chick-Fil-A (301-314-6568), Subway (301-266-7827), Moby Dick (301-405-6531), Auntie Anne's (301-314-6569), Maryland Dairy (301-405-1415)
- The UPS Store, a full-service postal and packaging facility, 301-314-9982
- Ticket Office, offering campus performance tickets, 301-314-TKTS
- Union Shop 301-314-7467, featuring snacks, sodas, newspapers, and magazines

Reservable Space

The Stamp offers meeting rooms that accommodate groups from 8 to 1,000 people. For reservations, or catering information, contact the Event and Guest Services Office, 301-314-8488 or visit http://thestamp.umd.edu/event_guest_services.

Adele H. Stamp Student Union - Center for Campus Life Hours

The Stamp is open Monday through Thursday, 7 a.m. to midnight; Friday, 7 a.m. to 1:30 a.m.; Saturday, 8 a.m. to 1:30 a.m., and Sunday, 11 a.m. to midnight during the academic year with modified hours during the summer and university breaks. For more information, see http://thestamp.umd.edu/.

See other Adele H. Stamp Student Union - Center for Campus Life hours, offices, and services elsewhere in Chapter 3.

Community Service-Learning Office
Activities and Engagement
Multicultural Involvement and Community Advocacy
Religious Programs

Alumni Association

Samuel Riggs IV Alumni Center
301-405-4678
alumni@umd.edu
www.alumni.umd.edu
800-336-8627

The University of Maryland Alumni Association exists to foster a spirit of loyalty, involvement and life-long commitment to the university for its more than 350,000 living alumni. The

association is a nonprofit, membership organization for alumni of the University of Maryland, College Park.

Through traditional and innovative programming, the Alumni Association provides hundreds of programs and initiatives each year which strive to fulfill its mission of connecting, cultivating and channeling the power of Terps to both enrich themselves and advance the University.

The alumni association offers all graduates access to the dynamic network of Terrapins who share interests, common acquaintances, professions, locations and more. It promotes opportunities for alumni to volunteer in their communities or travel the world with fellow Terps. Most important, the alumni association seeks to build Terrapin spirit through over 60 alumni regional, affinity and academic networks throughout the country.

While the association serves all alumni, it also provides special programs and services to members of the association, including consumer discounts, a Terp to Terp mentorship program, access to members-only events, and special pricing at association events.

The alumni association is governed by a board of alumni volunteers and is supported by countless other alumni volunteers around the world.

Book Center

Stamp, Lower Level
301-314-BOOK
www.umcp.bncollege.com

The University Book Center, operated by Barnes & Noble, is the *official* bookstore for the University of Maryland. The Book Center is the only store that carries textbooks for *all* of your classes. The store has a large selection of ***used, digital, and rental textbooks*** that are available in many courses. General-interest books, literature, technical books, and best sellers can be found on the lower level of the store. The Book Center also carries a wide selection of school supplies, and imprinted sportswear and related items. The Book Center's hours of operation and a complete listing of their products and services can be found at www.umcp.bncollege.com.

Department of Fraternity and Sorority Life

0221 Stamp Student Union
301-314-7172
301-314-9393
Director: Matt Supple
www.greek.umd.edu

Office Hours: Monday - Friday. 8:30 a.m. - 5:00 p.m.

The Department of Fraternity and Sorority Life oversees all recognized social and cultural/multicultural based fraternities and sororities. Staff within the department provide

advising and support for the chapter members, their leadership, and the leadership of four student governing councils: the Interfraternity Council (IFC), Multicultural Greek Council (MGC), the National Pan-Hellenic Council (NPHC) and the Panhellenic Association (PHA). The department also manages the 21 university-owned fraternity and sorority houses and provides resources for the off-campus fraternity and sorority houses.

Dining Services

1109 South Campus Dining Hall
Dining Plans:301-314-8069
Terrapin Express: 301-314-8068
Student Employment: 301-314-8058
umfood@umd.edu
dining.umd.edu

Dining Services at the University of Maryland is one of the largest self-operated and self-supported dining programs in the country. In addition to three resident dining halls we operate nineteen cafés, seven brand-name quick-service locations, five convenience shops, and two restaurants scattered across campus. We welcome students, faculty, staff, and visitors into all locations across campus. For a complete list of dining locations, hours, menus, and detailed information about our program visit dining.umd.edu.

The Diner and South Campus Dining Hall open at 7:00 am Monday to Friday, 10:00 am Saturday and Sunday. These two dining halls serve dinner until midnight Sunday to Thursday, and until 10:00 pm on Friday and Saturday. 251 North Dining Hall is open Sunday to Friday 11:00 am to 8:30 pm. Restaurants serve lunch and dinner. Convenience shops in resident communities are open long hours (the 24 Shop, in the Denton Community, is open around the clock!). Popular brand-name quick-service franchises clustered in food courts, full-service restaurants, and cafés tucked in academic buildings have hours that coordinate with the schedules of people using those facilities.

Resident Anytime Dining Plans

All Maryland Resident Dining Plans offer seven-day unlimited dining hall access. Plan members can come in to any dining hall any time we're open and choose anything we're serving. They can return any number of times, any day of the week, all semester long. Plan members enter the dining hall using touchless biometric technology; guests may enter using a Guest Pass, cash, credit or Terrapin Express. Come in for meals, between meals for snacks, stop by late at night for a bedtime treat, and meet up with friends to study or socialize. We hope to be part of your campus home base.

Three dining halls feature over 42 culinary stations serving classic lunches and dinners, self-serve salad bars and specially-assembled salads, build-your-own pasta, stuffed-to-order burritos, hot and cold wraps and sandwiches, and rotisserie meats with healthy homemade side dishes. Students will find internationally themed shops, smoothie stations, bakeries, vegan stations, and Mongolian grills.

Students who live in traditional, on-campus resident halls select one of four Seven-Day Resident Dining Plans:

- Base – Anytime Dining + 2 Guest Passes
- Base Plus – Anytime Dining + 4 Guest Passes + 200 Dining Dollars
- ***Preferred – Anytime Dining + 6 Guest Passes + 300 Dining Dollars***
- Premium – Anytime Dining + 8 Guest Passes + 400 Dining Dollars

Dining Dollars are accepted in all Dining Services permanent locations including six campus cafés brewing Starbucks coffee and espresso beverages and Dining Services operated brand-name locations in the Adele H. Stamp Student Union and Glenn Martin Engineering.

Dining Dollars can be used in campus convenience shops for dorm room snacks, school supplies and toiletries and in cafés on campus for a fresh grab-n-go sandwich, salad or sushi.

Dining Dollars are discounted when you purchase them as part of an upgraded dining plan and there's no tax when you use them.

Guest Passes can be used to bring an occasional guest into the dining halls. Alternately, guests are welcome to pay at the door using cash, credit or Terrapin Express.

Optional Dining Plans

We are always pleased to welcome students, faculty, staff and guests in dining halls, restaurants, shops and cafés on campus! Members of the campus community can become members of the dining plan program in several ways:

- Any student can purchase a **Seven-Day Anytime Dining Plan**. This plan provides unlimited access to the three dining halls any time we're open, any number of times, any day of the week, all semester long.
- To non-resident students we offer a **Five-Day Anytime Dining Plan**. This plan provides unlimited access to dining halls Monday morning through Friday evening.
- We offer **Dining Dollars** - accepted at all permanent Dining Services locations. When you purchase Dining Dollars, you get a discount! And there is no tax when you use Dining Dollars.
- And remember, we accept cash, credit and Terrapin Express at all locations.

Terrapin Express

Terrapin Express is a prepaid debit account: money you set aside to use at over 50 locations across campus including the University Book Center and University Health Center. Cashiers, copiers, printers and washing machines use your UMD ID card to access account information. To activate your account, call the office or visit the website listed above. Funds roll over from semester to semester; additional funds can be added at any time. Find a complete listing of participating locations at www.dining.umd.edu/terrapin .

Engagement and Activities

0110 Adele H. Stamp Student Union - Center for Campus Life
301-314-7174
www.thestamp.umd.edu

The mission of Engagement and Activities areas is to support and complement the University's academic mission and to enhance the educational experience of students through exposure and participation in social, cultural, recreational, leadership, intellectual, and governance activities.

Student Organization Resource Center. Registers all student organizations at the university and provides an online directory of more than 850 groups. Organization support services includes: accounting assistance, advisors' workshops, leadership training programs for organization leaders, involvement sessions offered for classes and semester orientations are some of the ways involvement is nurtured for organizations and individuals. In addition, First Look Fair and Stampfest are large-scale involvement fairs held at the beginning of each semester to showcase the student groups and organizations.

Organization Advising. Major student groups such as the Student Government Association, Graduate Student Government, Peer Leadership Council, TerpVets, the Homecoming Committee, and Student Entertainment Events receive direct advising from Engagement and Activities staff. Other student groups can also obtain help by request. Assistance in programming, securing a faculty advisor, officer transitions, and efforts to create a new organization is available.

Programs and Leisure Learning Opportunities. Staff mentors student volunteers and leaders to provide options for out of class engagement through recreational options that includes: the Art and Learning Center (offering non-credit courses), the Stamp Gallery (featuring regular displays of the visual arts), the TerpZone (bowling, billiards, and more), as well as Stamp Special Events and Programs.

Engagement Area. Staff members work directly with some distinct and growing student constituencies on campus. The staff are available as resources for students and encourage student involvement in all areas of campus. The areas served by the Engagement Team include **Graduate Student Life, Veteran Student Life, Transfer and Off-Campus Student Life, Transfer 2 Terp** (a learning community for students who have transferred from local community college), and the **Memorial Chapel** as well as its affiliated 14 chaplaincies' work in spiritual diversity. Students are engaged and integrated into the campus community through social, educational, and outreach programs to assist in the transition to collegiate life.

Housing: Resident Life

1102 Annapolis Hall
301-314-2100
reslife@umd.edu
www.reslife.umd.edu

The Department of Resident Life is responsible for management of the residence halls as well as the cultural, educational, recreational and social programs and activities that create the *Maryland Residential Experience* for residential students. The department is committed to students' academic and social success in their lives on campus and to the role the residential living experience will play in their successful lives beyond the University of Maryland.

While living in a Maryland residence hall is not required, nine of every ten students in Maryland's freshman class make the choice to live on campus. More than 90 professional and graduate staff and over 400 undergraduate student employees meet the needs of resident students.

There are rooms for approximately 9,500 undergraduate students in 38 residence halls. Three different styles of living are available to campus residents: traditional halls, suites, and apartments. Within traditional housing, where most first-year residents live, single, double, triple and quadruple room occupancy exists. All rooms have a cable and data jack for each student. One telephone jack is provided in each room.

Our nationally acclaimed living-learning programs include: Advanced Cybersecurity Experience for Students (ACES), Beyond the Classroom, BioFIRE Living & Learning Center, Carillon Communities, CIVICUS, College Park Scholars, Digital Cultures and Creativity, Entrepreneurship and Innovation, FLEXUS: The Dr. Marilyn Berman Pollans' Women in Engineering Living & Learning Community, Gemstone, Global Communities, Hinman CEOs, Honors Humanities, Integrated Life Sciences, Jiménez-Porter Writers' House, Language House, University Honors, and the Virtus Men in Engineering Program. All of these programs add to the diversity and quality of on-campus housing options.

First-time freshmen are guaranteed on-campus housing provided they complete their Enrollment Confirmation and Housing and Dining Services Agreement along with the $400 enrollment deposit, by May 1st. Transfer students who want to live on campus should complete these items as well and will be allotted housing on a space available basis. No housing reservation deposit is required.

Leadership and Community Service-Learning

1110 Adele H. Stamp Student Union - Center for Campus Life
301-405-9044
www.thestamp.umd.edu/lcsl

Leadership & Community Service-Learning (LCSL) promotes socially responsible leadership through transformative learning and community engagement. Through our values (collective approach, social responsibility, principled practice, critical inquiry, and engaged scholarship), we work with students, staff, faculty, and community members to achieve our vision of a just world through the practice of socially responsible leadership.

Maryland LEAD

Out-of-classroom leadership conference, institutes, retreats, and programs focused on teaching socially responsible leadership for personal, professional and civic experiences. The program recognizes leadership as an ability that can be developed in all people, opening doors for individual growth and social change. Signature programs include the Peer Facilitators, The Terrapin Leadership Institute (TLI), Activation Academy, the Maryland Leadership Conference, Maryland Leadership Summit and Maryland Leadership Advance.

Maryland Leadership Studies Program

Curricular offerings include credit-bearing coursework covering a range of topics including leadership theory and practice, leadership ethics, diversity in leadership, and group and organizational processes. Courses on leadership and identity and other special topics are also available. Students may also pursue a Minor in Leadership Studies and a certificate, offered through the Department of Counseling, Higher Education, and Special Education in the College of Education.

Other curricular programs include online resources for faculty to support service-learning initiatives in the classroom, including a faculty fellow program to enhance service-learning across curriculums.

America Reads*America Counts & Partners in Print (AR*AC)

In collaboration with the Prince George's County Public School system, America Reads*America Counts (AR*AC) provides high quality mentoring in local schools that enriches learning opportunities for both college and elementary school students. Approximately 250 Maryland federal work-study, volunteer, and intern students serve as reading and math mentors and work with families on literacy in 18 Prince George's County elementary schools. The three core mentoring programs are America Reads (1st and 2nd graders, working on reading and writing skills), America Counts (4th graders, working on math skills), and Partners in Print (working with Spanish-speaking families on techniques to encourage reading at home).

Terp Service

Community Service-Learning programs engage students on campus in meaningful service-learning with the local community through resources, programs, and events. We seek to explore the complexities of social issues, encourage critical thinking, and take action to address community needs and build upon community assets. Signature programs include: Terps for Change, Terp Service Days, UMServes (a listserv for volunteer opportunity), and Service 24/7 (a community partner database).

Immersion Experiences - Alternative Breaks & Alternative Weekends

The Alternative Breaks (AB) and Alternative Weekends programs engages students in substance free, short-term service-learning experiences. Student participants travel locally, nationally, and

internationally in teams during the university's winter, spring, and summer breaks to engage in active service, gain new perspectives on social issues, meet direct community needs and build upon community assets. Students also have the opportunity to engage in alternative week experiences through are AWE program. AB and AWE experiences explore social issues including disaster relief, environmental restoration, immigration, HIV/AIDS, education, homelessness, and healthcare. UMD Alternative Breaks main goal is to develop globally-conscious citizens who are transforming communities for good. Opportunities to be involved include serving as trip participants, trip leaders, interns and staff/faculty advisors.

National Clearinghouse for Leadership Programs (NCLP) – www.nclp.umd.edu

The National Clearinghouse for Leadership Programs (NCLP), through the development of cutting edge resources, information sharing, and symposia, supports leadership development in college students by serving as a central source of professional development for leadership educators across the globe. Housed at the University of Maryland since its creation in the 1990s, NCLP works to connect leadership educators to one another and support those developing leadership programs on their own campuses. NCLP is known world-wide for promoting the Social Change Model of Leadership Development.

VOICES of Social Change

Voices of Social Change invites engaging storytellers to share their experiences as active leaders in the local community. The purpose of the program is to honor the social change work of these leaders, to connect people and resources, and to inspire people to engage in social change.

Multicultural Involvement and Community Advocacy

1120 Stamp Student Union
301-314-8600
301-314-2672
mica-contact@umd.edu
www.thestamp.umd.edu/diversity

The Multicultural Involvement and Community Advocacy Office (MICA), is a unit within the Adele H. Stamp Student Union - Center for Campus Life and the Division of Student Affairs. In support of the University's commitment to diversity, multiculturalism, and social justice, we advance a purposeful campus climate that capitalizes on the educational benefits of diversity, through student-centered advising, advocacy, programs, research, and practices. We encourage student involvement and engagement in the campus and community. MICA serves all students and seeks to empower them through education on issues of race, ethnicity, sexual orientation, gender identity, gender expression, religion and their intersections. All of the activities, programs, services and research of MICA strive towards meeting the common outcome of developing "good citizens" and committed leaders.

Nyumburu Cultural Center

Nyumburu Cultural Center
301-314-7758
301-314-0383 (fax)
Director: Dr. Ronald Zeigler
www.nyumburu.umd.edu

The Nyumburu Cultural Center has served as a major resource of cultural, historical, and social programming at the University of Maryland, College Park for forty-six years. The Center works closely with student, faculty, and community organizations. The Nyumburu Cultural Center offers a variety of socio-cultural, musical, educational and artistic programs to the campus community. The nature of the diverse programming and activities is based on the African American, African, and Caribbean Diaspora experience(s). Nyumburu is home of the Maryland Gospel Choir, Shades of Harlem (performing arts ensemble), The Black Explosion Newspaper, Male Spokesmodel Competition, Miss Unity Scholarship Pageant, Juke Joint, Gospel Happy Hour, Leadership Series, Nyumburu Jazz Club, Kwanzaa Celebration, Cultural Dinner during Black History Month, Literature Conference, Homecoming Alumni Tailgate, Annual Talent Showcase, Annual Student Awards Banquet, Black Male Initiative (BMI) Program, and Sisterhood of Unity and Love (SOUL).

Nyumburu's staff are advisors to many campus student organizations: Black Student Union, African Student Association (ASA), The Maryland Gospel Choir, The Black Explosion Newspaper, Sigma Gamma Rho sorority Inc., Delta Sigma Theta Sorority Inc. Kappa Alpha Psi Fraternity, inc., and Dimensions Modeling Group to name a few.

Nyumburu presents Blues, Jazz, and Gospel music concerts as well as academic courses in Creative Writing (ENGL274), Blues (AASP298V) and Jazz (AASP298Z) for three credits each. Maryland Gospel Choir students earn 1-credit (MUSC329E), and students who take EDCP108N, College and Career Advancement earn 1-credit. Academic and collaborative programming is also done with colleges/departments such as: School of Public Health, Department of African American Studies, and the Clark School of Engineering.

During the summer, Nyumburu sponsors a Summer Camp Program for students from the age of five to sixteen. Through this dynamic eight week program, opportunities for youth to explore academic, artistic, and athletic interests in a relaxed and creative environment are provided. Camp Shule was established to provide the children of Maryland faculty/staff and local youth with a diverse educational experience.

The Multipurpose Room, Conference Rooms, Computer Labs, and the Nyumburu Amphitheatre of the Nyumburu Cultural Center are open to the students, faculty and staff of the University of Maryland. Room reservations are also available at a nominal cost for departmental and off-campus events and programs. Come in and interact with us, meet other students and make your ideas and wishes known. Our staff goal is to make Nyumburu a cultural center that is, **"Your Home Away from Home."**

Off-Campus Housing Services

0232 Stamp Student Union
301-314-3645
301-314-9874
och@umd.edu
www.och.umd.edu

The Off-Campus Housing Services Office provides information and resources about housing and off-campus living. Resources available online include a searchable web-based housing database listing available rental properties in the area; a roommate finder database where students create a profile and search for others with similar housing needs and interests; as well as an extensive array of educational materials. For assistance in locating housing, please visit www.och.umd.edu or contact our office.

Office of Student Conduct

2117 Clarence M. Mitchell Jr. Building
Phone: 301-314-8204
Fax: 301-314-9533
Director: Andrea Goodwin, Ph.D.
studentconduct@umd.edu
www.studentconduct.umd.edu

The mission of the Office of Student Conduct is to resolve allegations of misconduct under the *Code of Student Conduct* and the *Code of Academic Integrity* in a manner consistent with the core values of fairness, honesty, and integrity, while promoting the University's educational mission. Enhancing the development of character, civility, citizenship, individual/community responsibility, and ethics is essential to this mission. University students play a significant role in considering the behavior of their peers and are asked to assume positions of responsibility as members of the university's student judiciary. The following tenets guide this mission:

- To regard each student as an individual deserving of individual attention, consideration, and respect
- To consider the facts fully and carefully before resolving any case
- To speak candidly and honestly with each student
- To hold each student to a high standard of behavior, both to protect the campus community, and to promote student ethical development
- To recognize the reality of human fallibility, as well as the stresses associated with collegiate life, and to demonstrate compassion, understanding, and a sense of humor
- To contribute to the educational mission of the University by designing policies, conducting programs, and offering instruction that contribute to the intellectual and ethical development of the entire student body

General Statement of Student Responsibility: Students are expected to conduct themselves at all times in a manner consistent with the University responsibility of protecting the safety,

welfare, rights, and property of all members of the campus community as well as ensuring to all members of the campus community the opportunity to pursue their educational objectives. The Office of Student Conduct extends jurisdiction of the *Code of Student Conduct* to include conduct which occurs **off-campus** as a means to enhance the safety and security of students living both **on- and off-campus**. Specific expectations for student behavior are outlined in the *Code of Student Conduct* and the *Code of Academic Integrity* (See www.president.umd.edu/policies/).

Disciplinary Procedures: Students accused of violating university regulations are accorded fundamental due process in disciplinary proceedings. Formal rules of evidence, however, shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding unless significant prejudice to one of the parties may result. University procedures are outlined in the *Code of Student Conduct* and *Code of Academic Integrity* supplemented by materials provided by the Office of Student Conduct to assist students who are facing accusations of misconduct.

Religious Programs

1101 Memorial Chapel
301-314-9866
301-314-9741
chapel@umd.edu
www.chapel.umd.edu
301-314-9893

The following chaplains and their services are available:

Baptist
Mrs. Jessica Senasack
2120 Memorial Chapel
410-627-1096
jessbcm@umd.edu
Black Ministries
Rev. Dr. Ruby Moone
1112 Memorial Chapel
301-405-8445
rrmoone2@aol.com

Christian Science
Mr. Robert Snyder
2118 Memorial Chapel
301-474-0403
rsnyder@umd.edu

Church of Jesus Christ of Latter Day Saints *(Mormon)*
Mr. Richard Bracey

7601 Mowatt Lane, College Park
301-422-7570
braceyRN@ldschurch.org

Orthodox Christian
Rev. Kosmas Karavellas
2647 Riva Road, Annapolis
410-573-2072
fatherkosmas@schgochurch.org

Episcopal/Anglican
2116 Memorial Chapel
Rev. Kristen Pitts
301-405-8453
rev.kpitts@gmail.com

Hindu
Ms. Kiran Sankhla
2112 Memorial Chapel
muraris2002@yahoo.com

Jewish - Chabad
Rabbi Eli Backman
Chabad Jewish Student Center
7403 Hopkins Ave., College Park
301-277-2994
chabad@umd.edu

Jewish - Hillel
Rabbi Ari Israel
Hillel Jewish Student Center
7612 Mowatt Lane, College Park
301-422-6200
aisrael@marylandhillel.org

Lutheran
Rev. Raymond Ranker
2103 Memorial Chapel
301-405-8448
lutheran@umd.edu

Muslim
Mr. Tarif Shraim
2118 Memorial Chapel
240-499-4733
tshraim@gmail.com

Roman Catholic
Fr. Rob Walsh
Catholic Student Center
4141 Guilford Rd., College Park
301-864-6223
frrob@catholicterps.org

United Campus Ministry *(Presbyterian, Disciples of Christ, United Church of Christ)*
Rev. Holly Ulmer
2101 Memorial Chapel
301-405-8450
ulmer@umd.edu

United Methodist
Rev. Brett Pinder
2102 Memorial Chapel
301-405-8451
bpinder2@umd.edu

Transportation Services

Regents Drive Garage
301-314-DOTS (x3687)
transportation@umd.edu
www.transportation.umd.edu

Please consider a sustainable transportation option such as walking, biking, ridesharing or riding Shuttle-UM as alternatives to driving alone to campus.

Shuttle-UM
The Shuttle-UM transit system, operated by the Department of Transportation Services (DOTS), is supported mainly by student fees. Shuttle-UM provides commuter, evening, NITE Ride, paratransit and charter services to university students, faculty and staff while classes are in session. DOTS publishes a Campus Connections transit guide each semester. Campus Connections guides contain current bus schedules as well as general information about getting around in the DC Metro area. Campus Connections guides are available at the DOTS office in Regents Drive Garage, the information desk at Stamp, residence halls and on the DOTS website. More information about Shuttle-UM is available online at transportation.umd.edu.

Zipcar
For students who only need occasional access to a vehicle, Zipcar is a great alternative to storing a car on campus. Zipcar is a membership-based carsharing network available on campus to UMD students. Members as young as 18 years old have access to any of the 24 Zipcars located on and around campus. Zipcars can be reserved in advance for short trips to the store or day trips throughout the region. Membership includes the cost of gas and insurance. To learn more or become a member, visit transportation.umd.edu/zipcar.html.

Biking
The University of Maryland is a gold-level Bicycle Friendly Campus. The BikeUMD program, a partnership between DOTS and the Department of Recreation and Wellness, is responsible for bicycle education and encouragement on campus. BikeUMD offers classes, discounted safety gear, sponsored events, group rides and bicycle registration. The RecWell Bike Shop offers free bike maintenance and semester bike rentals. All bicycles on campus are required to be registered. Visit bikeindex.org/umd for free registration.

mBike is a bikeshare program designed to offer a convenient, affordable and fun way to get around. Members have access to 135 bikes at 15 stations on and around campus, including five adaptive bikes for those with special needs. Users simply unlock bikes through a free mobile app or via text message and end trips by returning bikes to any mBike station. More information is available at zagster.com/mbike.

Parking
DOTS is responsible for managing and maintaining more than 18,000 parking spaces at UMD. All students who plan to park on campus must register online before bringing a car to campus. Online student parking registration begins in July and August, in January for spring-only parking and in April for summer parking. Parking registration fees are billed to student accounts. Parking is assigned on a first come, first served basis according to credit level and housing status. Please visit the DOTS website at transportation.umd.edu for specific parking lot assignment information. Beginning fall 2017, parking will not be available for freshman resident students.

Transportation to New York, New Jersey and BWI Airport
DOTS provides transportation to and from New York and New Jersey for Thanksgiving, winter and spring breaks. Registration opens approximately one month before the scheduled trip date. Free shuttle service to and from Baltimore/Washington Thurgood Marshall International Airport (BWI) is available every three hours throughout the day for Thanksgiving, winter and spring breaks. This is a first come, first served service.

Motorized Scooters
Parking registration is required for any motorized scooter parked on campus. Motorized scooter drivers are required to wear a helmet and eye protection while operating or riding a scooter. Any motorized scooter left unattended in an area not designated for scooter or motorcycle parking is subject to towing. Please visit the DOTS website for more information about motorized scooters and a map of motorized scooter parking locations.

Social Media
While the DOTS website is the best place to get transportation information, alerts and additional information can be found via the @DOTS_UMD and @Shuttle_UM twitter accounts, BikeUMD and DOTS UMD Facebook pages, and @DOTS_UMD on Instagram.

University Career Center & The President's Promise (UCC/TPP)

3100 Hornbake Library, South Wing
301-314-7225
Director: Kelley Bishop
UCC-studenthelp@umd.edu
www.Careers.umd.edu

Refer to Careers.umd.edu for current hours of operation.

Mission

We provide valuable programs and services to address the diverse career development and employment needs of our Terps. Decide on career interests, employment and furthering educational pursuits such as professional or graduate school. Our Center collaborates with academic departments, employers, and alumni to deliver workshops, services, and Career & Internship Fairs throughout the year. Over 17,000 Terps subscribe to the Center's E-Newsletter for weekly, Terp-specific career and internship news.

Through The President's Promise, every student has the chance to achieve extraordinary personal growth by engaging in a special experience outside of the classroom through activities such as internships, research, service-learning, living and learning programs, leadership and international experiences. Drastically increase your future career options by gaining this competitive edge. Though opportunities within The President's Promise dwell within many offices across campus, President's Promise staff are available at the University Career Center to help you individually navigate through all of your options and select the best opportunities for your goals.

CAREER the Turtle!

Center staff can help you:

- address educational and career decisions
- identify useful resources
- take advantage of internships, full-time, part-time and summer employment opportunities
- improve resume and cover letters
- sharpen job search skills and strategies
- plan for graduate and professional school

The Terp Guide
Dozens of helpful “cheat sheets” about the career planning process and successful job searches in one free booklet! Contents include resume and cover letter samples, successful interviewing techniques and job search tips. Stop in for a physical copy or visit our website for the most up-to-date digital copy.

Careers4Terps (Virtual Career Center 24.7.365)

Update your Careers4Terps profiles to manage your career. C4T is your gateway to:

- schedule individual career advising appointments
- access internship and job postings
- receive job and internship notifications related to your specific interests
- receive e-newsletter with event information related to your career interests
- participate in On-Campus Interviewing to discuss your qualifications with recruiters
- engage with employers through information sessions/networking opportunities

You will also gain access to:

- Candid Career: Career-related informational videos by UMD alumni
- FOCUS2: Career testing/self-assessment
- InterviewStream: Practice interviewing 24/7/365
- Going Global: Working abroad, visas, international student resources
- Vault: Employer/industry insights, rankings and reviews

Networking Events
Connect with alumni and employers during the academic year. Opportunities include:

- resume and mock interview clinics
- career and employment panels
- job shadowing and informational interviews
- career and internship fairs
- employer networking sessions

Intern for a Day
Connects undergraduate students with host sites for one day internship/shadowing experiences. You may attend meetings, participate in informational interviews with other staff members or work on small projects.

Career Shuttles
Center-sponsored field trips to employer sites from various industries. Shuttle seats are limited. Students should RSVP early.

Career Courses

PSYC123: The Psychology of Getting Hired • 1-credit
Looks at what's behind the hiring process, applies psychological principles and strategies for landing internships or other jobs. *Freshman/Sophomore standing.*

EDCP108i: College and Career Advancement: Concepts and Skills; Academic Transitions to Internships • 1-credit
This course is designed to provide students with the full experience of searching for an

internship. Themes include the importance of targeting your resume and cover letter to internship postings, communicating interests and skills to potential employers, searching for internships, networking with alumni and professionals in your intended career field, and more.

UNIV099: Internship Seminar • 0-credit
Complements supervised work experiences and assures that experiences are noted on your transcript.

Evisors - UMD Alumni Advisor Network
Connects students with alumni and webinars for career and job search advice.
https://umd.evisors.com.

University Counseling Center

Shoemaker Building, 4281 Chapel Lane
Phone: 301-314-7651
Fax: 301-314-9206
Director: Sharon Kirkland-Gordon, Ph.D.
skirklan@umd.edu
www.counseling.umd.edu

Seeking help is a sign of strength! Many students encounter a variety of personal, emotional, social, career, and academic issues that call for assistance beyond the advice provided by friends and family. The Counseling Center in Shoemaker Building is staffed by licensed psychologists and counselors who provide free and confidential counseling services for University of Maryland students. To schedule an appointment, call 301-314-7651 or stop by the front desk on the first floor of Shoemaker Building. Drop-in counseling is available to students of color who would like to consult with a counselor of color and LGBTQ students who prefer to consult with a gay, lesbian or gay affirming counselor. Drop in hours are also available for international students and military veterans. Students are encouraged to visit our website or call 301-314-7651 for current drop-in hour schedules. An after-hours counseling service staffed by professional counselors is available for urgent mental health concerns after business hours, during weekends, breaks, and holidays. Call 301-314-7651.

Counseling Center Services

Personal and Psychological Counseling. You don't have to face your problems alone. In a warm and supportive environment, you can meet with a counselor to discuss any concern you may have related to your personal, emotional, and social well-being. Among the topics that students discuss in counseling are academic stress, anxiety, depression, loneliness, self-esteem, relationship issues, grief and loss, and family problems. You may see a counselor for short-term individual counseling or couples counseling or join one of the many counselor-led support groups. Call 301-314-7651 or visit our website at www.counseling.umd.edu.

Career Counseling. Whether you are choosing a major, changing a major, or establishing career goals, it is important to understand how your personality, values, and interests relate to your

future professional life. You can get help with this process at the Counseling Center. Your exploration may include taking career interest tests and interpreting the results with a counselor or taking advantage of a computerized career information system. Call 301-314-7651 or visit our website at www.counseling.umd.edu.

Support for Parents of College Students. The Parent Warmline is a telephone consultation resource available to any parent or guardian concerned about his or her student's adjustment at college. Counselors will help callers address a range of concerns related to academic, social, and emotional issues and overall mental health. Parent Warmline staff are available at 301-314-7651.

Group Counseling and Workshops. You can gain strength to deal with your concerns by getting together with other people who share similar problems, interests, and goals. Each semester, the Counseling Center offers interpersonal psychotherapy groups and weekly support groups that address a variety of topics, such as relationships, sexual assault, eating disorders, dissertation support, and stress management. Facilitated by psychologists and counselors, the typical group size is 6 to 8 students. Our group program includes International Student Support, Creating Confidence, LGBTQIA Support, Circle of Sisters, and Women's Graduate Student Support Group. One hour workshops that teach basic coping skills also are available. Call 301-314-7651 or visit our website at www.counseling.umd.edu.

Academic Skills Counseling. Students can meet individually with our dedicated academic skills coaches to learn how to manage their time and the demands of their courses, apply efficient learning strategies, and enhance their study habits. To schedule an appointment in the Learning Assistance Service (LAS), call 301-314-7693 or sign up online at: https://lasonline.umd.edu. Visit our website at www.counseling.umd.edu/LAS.

Guided Study Sessions (GSS). GSS provides peer-led collaborative academic support in traditionally difficult lower level gateway courses. GSS helps students learn more and perform better in these important gateway courses by encouraging active engagement in the learning process. Students who perform better in the lower level courses and develop effective learning strategies are more likely to persist and perform better in upper level courses. For more information call the Learning Assistance Service at 301-314-7693.

Accessibility and Disability Service. The University of Maryland is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefit of services, programs or activities at the University. The Accessibility and Disability Service (ADS) provides reasonable accommodations to qualified individuals to ensure equal access to services, programs, and activities sponsored by the University of Maryland. Through a variety of services, ADS works to ensure that your accommodation and accessibility needs are met. The ADS office is staffed by dedicated professionals who are available to assist, consult, support, and advocate on behalf of individuals requesting disability services.

ADS provides a range of accommodations for students with disabilities, including:
(1) interpreters and transcribing services for deaf or hard-of-hearing students; (2) enlarged print

and alternate text format of textbooks and written materials for individuals with print material disabilities (e.g., blind or low vision, learning disabilities and attention deficit disorders, or physical disabilities); (3) extended time and private or reduced distraction testing space for exams; and (4) assistance with access to various buildings and facilities on campus including access to the campus' paratransit service.

To register, visit the Accessibility and Disability Service on the Ground Floor of Shoemaker Building or call 301-314-7682 - (voice and TTY). Students can also email the office at adsfrontdesk@umd.edu, or visit the ADS website at www.counseling.umd.edu/ads.

Testing Services. The Testing Office in the Counseling Center administers career and personality tests for counseling purposes and also administers national standardized educational tests, such as the GRE, LSAT, MCAT, PRAXIS, GMAT, and Miller Analogies. The Testing Office also provides test proctoring for courses that students may be completing at other universities in order to transfer course credit to their University of Maryland transcripts. Call 301-314-7688 or visit our website at http://counseling.umd.edu/testing

Research Services. The Research Unit produces a variety of research briefs and publishes articles on college student development, retention, multiculturalism, and clinical service delivery. For more information about our research projects, call 301-314-7651 or visit our website at www.counseling.umd.edu/RESEARCH.

Counseling Center Hours

Counseling Service appointments	**301-314-7651**
Monday-Thursday	8:30 a.m. to 9:00 p.m.
Friday	8:30 a.m. to 4:30 p.m.
Students of Color Walk-In Hours	no appointment needed
Monday - Friday	3:00 p.m. to 4:00 p.m.
Rainbow Walk-In Hours	no appointment needed
Monday - Friday	3:00 p.m. to 4:00 p.m.
Veterans Walk-in Hours	no appointment needed
Monday – Thursday	call for hours
International Students Walk-in Hour	no appointment needed 3:00 p.m. to 4:00 p.m.
Learning Assistance Service	**301-314-7693**
Mondays-Friday	8:30 a.m. to 4:30 p.m.
Disability Support Services	**301-314-7682**
Monday - Friday	8:30 a.m. to 4:30 p.m.
Testing Office	
Monday - Friday	**301-314-7688**
Evening and weekend hours for testing purposes	8:30 a.m. to 4:30 p.m.

University Health Center (UHC)

Campus Drive, Building 140
301-314-8180
301-405-9755 (fax)
health@umd.edu
www.health.umd.edu

Hours of Operation:
Monday-Thursday: 8:00 a.m. - 6:00 p.m.
Friday: 8:00 a.m. - 5:00 p.m.

Saturday: 9:00 a.m. - 12:00 p.m.

Sunday: Closed

About the University Health Center

The University Health Center (UHC) is a nationally accredited ambulatory health care facility located on Campus Drive (across from STAMP). All registered students living on or off-campus are eligible to use the UHC. The UHC is open during the hours listed above, with varied hours during semester breaks, holidays and summer sessions. Visit the UHC website, www.health.umd.edu, for up-to-date information. ***For life-threatening or Mental Health Emergencies, call 911 or (301) 405-3333*** (University of Maryland Police Department, http://www.umpd.umd.edu/***).*** For a list of area hospitals or urgent care centers and their contact information, see: http://www.health.umd.edu/about/emergency.

Services

University Health Center offers comprehensive health services including:

- Primary Care (http://www.health.umd.edu/clinicalservices/primary)
- Walk-In Clinic (http://www.health.umd.edu/clinicalservices/triage)
- Mental Health (http://www.health.umd.edu/mentalhealth/services)
- Pharmacy (http://www.health.umd.edu/clinicalservices/pharmacy)
- Acupuncture (www.health.umd.edu/clinicalservices/complementary/acupuncture)
- Massage Therapy (http://www.health.umd.edu/clinicalservices/complementary/massage)
- HIV and STI testing (http://www.health.umd.edu/healthpromotion/sexualhealth/STIandHIVTesting)
- Meditation (http://www.health.umd.edu/meditation) and Smoking Cessation (http://www.health.umd.edu/smokingcessation)
- Nutrition (http://www.health.umd.edu/nutritionservices)
- Health Promotion and Wellness Services (http://www.health.umd.edu/healthpromotion)
- Substance Use Intervention and Treatment (http://www.health.umd.edu/suit)

- Men's (http://www.health.umd.edu/menshealth) and Women's (http://www.health.umd.edu/clinicalservices/womenshlth) Reproductive health care
- International Travel/Allergy/Immunizations Clinic (http://www.health.umd.edu/clinicalservices/allergimmuntravel)
- Campus Advocates Respond and Educate to Stop Violence Program (http://www.health.umd.edu/care)

How to Access Care

Students are seen by appointment (http://www.health.umd.edu/about/appointment) for routine care 8:00 a.m. - 4:30 p.m. on weekdays. Medical services are limited after 5:00 p.m. and on Saturdays 9:00 a.m.-12:00 p.m.

- Some appointments can be scheduled online at www.myuhc.umd.edu.
- Same-day appointments are available.
- A Walk-In Clinic is available, though waits tend to be longer for walk-in care. Walk-in patients are triaged and seen based on urgency.
- Fees will be assessed if an appointment is not canceled or rescheduled within: 4 hours for a medical appointment, at least 24 hours for a mental health/acupuncture/massage/physical therapy/travel clinic/nutrition/smoking cessation appointment, and 72 hours if the acupuncture/massage appointment is on a Monday. You may cancel or change an appointment on-line at www.myuhc.umd.edu or by calling (301) 314-8184.
- An After Hours Nurseline (877-610-9809) is available for free medical information *when the UHC is closed.*
- *The UHC and the University assumes no financial responsibility for care received off campus.*

Paying for Your Care

There are charges for almost all services provided at the University Health Center (UHC). We participate with many insurance plans and can bill those plans for our medical services. Your financial responsibility will vary depending on the type of insurance and service provided. We do allow the option to pay for service directly without using health insurance.

- ***Patients should always bring their health insurance card to the UHC when seeking care.***
- Patients are to check with their health insurance company and not assume that the health plan will pay for services provided at the UHC as some plans **do not** cover services outside their geographic area.
- We are considered out-of-network with Point of Service (POS) (http://www.health.umd.edu/node/1883#InsuranceTerms) plans.
- We cannot bill HMOs (http://www.health.umd.edu/node/1883#InsuranceTerms, e.g. Kaiser Permanente), Medicare, or out of state Medicaid plans and non-students with Medicaid.

- Charges not covered by insurance are posted to the student's Bursar Account or can be paid at the time of visit in the UHC. Charges can be paid by cash, check, credit cards, or Terrapin Express at the UHC.

The University Health Center Pharmacy (http://www.health.umd.edu/clinicalservices/pharmacy) participates with many pharmacy insurance plans.

Mental Health (http://www.health.umd.edu/mentalhealth/services) and Nutrition (http://www.health.umd.edu/nutritionservices) services are not billed through insurance.

- Mental Health Services are available to *registered students only*. There is a fee for each mental health session.
- Nutrition Services are available to students and non-students; there are fees for appointments with the Registered Dietitian.

Please call **(301) 314-9144** if you have further questions about fees or using your health insurance at the UHC. You may also refer to our health insurance Frequently Asked Questions (http://www.health.umd.edu/HealthInsuranceFAQs) page.

Confidentiality

Students younger than 18 years will need permission (http://www.health.umd.edu/sites/default/files/ImmunizationRecordForm.pdf) from a parent or legal guardian to be treated, except for mental health and sexual health services. Treatment and visit information will only be given to parents with the student's consent or through a court ordered subpoena. *If the visit is billed through an insurance policy, the insurance company may send detailed information concerning a medical visit to the policy holder (i.e. parent).*

Mandatory Health Insurance (http://www.health.umd.edu/insurance-info)

The University of Maryland requires ***all undergraduate students enrolled in 6 or more credits to show proof of health insurance.*** This is an active process that must be completed each year.

- *Each year*, students who have health insurance can go directly to www.firststudent.com and **complete an insurance waiver**.
- Students **without** coverage or those who wish to purchase the student health insurance plan can enroll at www.firststudent.com

Graduate Students are generally exempt from this requirement.

Additional information on student insurance and Frequently Asked Questions can be found on the University Health Center's web site: http://www.health.umd.edu/HealthInsuranceFAQs.

Immunization Requirements

The University of Maryland requires **ALL** new students, including graduate and transfer students, to provide *proof of two immunization dates for Measles, Mumps, and Rubella (MMR).* The Immunization Record Form *(http://www.health.umd.edu/sites/default/files/ImmunizationRecordForm.pdf) must be submitted to the University Health Center at Orientation, but no later than the first day of class.* Completed forms can also be faxed to 301-314-5234.

- **In addition to the above MMR requirement,** *INTERNATIONAL STUDENTS* from selected countries with a high incidence of Tuberculosis must also provide documentation of a **Tuberculosis (TB) test** completed within the past six months.
- Maryland State Law requires students living in residence halls to provide proof of vaccination against *meningococcal meningitis or a signed waiver* (http://www.health.umd.edu/sites/default/files/ImmunizationRecordForm.pdf) stating that they have chosen not to receive the vaccination.
- Failure to submit a completed *Immunization Record Form* (http://www.health.umd.edu/sites/default/files/ImmunizationRecordForm.pdf) will result in a Registration Block for the future semester and a non-compliance fee may be assessed. The Registration Block will be removed after the Immunization Record has been submitted and processed.

University Recreation and Wellness

301-226-4500
Director: Jay Gilchrist
recwell@umd.edu
www.recwell.umd.edu

Being physically active as a college student is a crucial component of success in and out of the classroom. Activity helps students manage stress, boosts their immune system against illness, aids sleep, improves mood, increases energy and provides a social connection to other students. Perhaps most importantly, movement primes the brain for learning and makes it easier to focus when studying.

University Recreation & Wellness (RecWell) encourages Terps to make the most of their college experience by incorporating movement and activity into their daily lives. There are many opportunities for students to find an activity they enjoy through RecWell.

Membership with RecWell and access to all its facilities, programs and services are included in the student fee. Students simply need their university ID to enter recreation facilities on campus. Facilities include the Eppley Recreation Center (ERC), Ritchie Coliseum, Reckord Armory Gym, the fitness studios in Regents Drive Garage, and multiple outdoor playing fields.

The ERC is the largest recreation facility on campus and offers a cardio fitness center, weight rooms, matted room, indoor track, and a functional training studio as well as courts for

basketball, racquetball, wallyball, and squash. The ERC also features indoor and outdoor pools for lap swimming and diving, a sauna, and steam room. When school is in session, the ERC is open 6 a.m.–midnight on weekdays, 8 a.m.–10 p.m. on Saturdays, and 10 a.m.– midnight on Sundays for students to enjoy their favorite activity on their own schedule. Weight rooms and cardio fitness centers are also located in Ritchie Coliseum.

For students motivated by a structured workout in a high-energy group setting, RecWell offers over 100 group fitness classes each week, including yoga, Zumba®, BODYPUMP™, cycling, BODYCOMBAT™, and high intensity interval training. Classes are no additional charge and are drop-in only—there's no need to sign up ahead of time. Students may also take advantage of working with a certified personal trainer to meet their individual fitness goals at a discounted rate for students.

Students who enjoy playing sports have many opportunities to do so through RecWell's sport club and intramural sports programs. These programs are open to everyone and you don't have to consider yourself an athlete to play. Many sport clubs do compete regionally and nationally against other schools, but they are also a great way to learn a new sport or simply enjoy the comradery that comes from playing for fun. There are 40+ student-led sport clubs, including ballroom dance, lacrosse, black belt, equestrian, sailing, figure skating, paintball, and soccer. Students can also participate in intramural sports that are open to all members of the university community. Participants select their own level of competition and play in either men's, women's or coed leagues over the course of a weekend, a week or a tournament lasting several weeks. Intramural sports include basketball, flag football, softball, soccer, racquetball, table tennis and more.

For students who prefer to be active outdoors, RecWell's adventure program offers outdoor adventure trips, clinics and social bike rides throughout the year. Students can take a day or weekend trip to go backpacking, caving, mountain biking, kayaking, rock climbing, or other various outdoor activities. Students may also use the adventure program resource library and rent gear to pursue their own outdoor adventure. The climbing wall and challenge course are located at the ERC, where students can challenge themselves physically and mentally to increase interpersonal skills and self-confidence. Maryland also has a vibrant cycling community. The RecWell Bike Shop in Cole Field House offers free repairs and maintenance and will even teach students how to repair their own bikes.

RecWell also offers community programs open to students including swimming lessons, water safety instructor and lifeguard training, and tennis instruction.

Veteran Student Life

0110 Stamp Student Union
301-314-0073
Brian Bertges, Coordinator for Veteran Student Life
bbertges@umd.edu
http://thestamp.umd.edu/VSL
Veteran Student Life (VSL) serves to the build and maintain a community of University of Maryland students, staff, faculty, and alumni who have served in the US military. The Veteran Student Life office is located on the ground floor of the Adele H. Stamp Student Union - Center for Campus Life. VSL programs and services support a seamless transition from military life to civilian college life providing extra support for continued growth in mind, body, and spirit. We carry the pride and confidence established in the military into the college experience as well as future careers for veteran alumni.
For more information about programming or overall Veteran Student Life at the University of Maryland, please contact Brian Bertges (bbertges@umd.edu) or visit http://thestamp.umd.edu/VSL.

Veteran Center
In addition to support and programming, Veteran Student Life offers a Veterans Center is available exclusively for UMD student veterans located in Cole Field House (Room 1122), thanks to a generous donation from Board of Trustee member and former Secretary of the Navy Gordon England. This center includes:

Television
Computers
Free Printing
Free Coffee
Study Lounge
Conference Room
Video Conferencing

Chapter 4. Registration, Academic Requirements, and Regulations

Academic Advising

Role of Advising

Academic advising is an integral part of each student's educational experience and it takes many forms. Academic advisors provide students with information on academic requirements needed for degree completion, help students plan for future graduate study or a career, and serve as a research person. Academic advising is a shared responsibility between the student and the advisor.

- **Provide information on academic requirements needed for graduation.** Advisors assist students in developing an academic and career plan, monitor students in the major, and discuss how a course of study fits a particular academic or career interest. Advisors answer questions concerning a specific academic concern, such as problems with a particular class, and guide students through the registration process, including providing information on various registration blocks and what needs to be done to remove them.
- **Help students plan for future graduate study or career.** Advisors discuss how an academic major can prepare a student for his/her career, and what career options are available. Advisors refer students to the Career Center which provides career counseling and workshops on issues such as writing resumes and preparing for job interviews. They also inform students about internship opportunities and how credit can be earned, and provide information on study abroad programs that might enrich a student's academic experience as well as enhance their resume. Advisors inform students about graduate school opportunities and application procedures.
- **Serve as a campus resource.** Advisors assist students in obtaining support from other offices of the university. This includes informing students about possible scholarships or fellowships, and referring students to academic support units that provide tutoring or workshops on study skills, time management, and stress management. They may recommend that students seek counseling for stress, addictions, or trauma that may be affecting their academic work. Advisors inform students with physical and learning disabilities of the support available to them. They also encourage students to enrich their experiences by becoming involved on campus via social, political, academic, ethnic/cultural, sport and/or recreational student organizations and activities.

Some advisors are able to provide information on all of the above. Others specialize in a particular topic or area of concern. For example, a college/department may have a specific career advisor or study abroad coordinator. Students in upper level courses are often advised by faculty members who can assist with graduate school and career issues. Furthermore, some advisors work with specific populations, such as returning students, athletes, students with physical or learning disabilities, and students of color.

If you are not sure where to seek advising, contact your academic college. When requesting to meet with an advisor, specify what topics you wish to discuss to ensure that you are directed to the appropriate individual. Advising at the University of Maryland is normally a combination of professional advisors, located in many of the college office, and faculty advisors. Please check your individual college to find out whom you need to see for academic advising. For more information, visit www.advising.umd.edu.

Academic Advising and Degree Completion

All new students are required to attend Orientation where they will register for classes. During their first semester, students develop a four year plan based on templates provided for each major (see www.4yearplans.umd.edu). Each plan includes specific benchmark courses to be completed within a specific period of time. Four year plans must be approved by an advisor in order to register for subsequent semesters.

Students are required to complete the benchmark courses in their major in order to progress to graduation (see *Student Academic Success-Degree Completion Policy* below). Outlined in each four year plan, benchmark courses guide students in a step by step process to degree completion and demonstrate satisfactory progress in the major. Academic units conduct regular reviews of students' progress, and those students who are in danger of falling behind benchmarks will be required to work with an advisor to develop a plan to get back on track. Students who do not make progress may be required to select a new major in which they can be successful.

Many students change their majors over the course of their academic career. When doing so, students must first complete and have approved a new four year plan. Any student who completes ten semesters or 130 credits without completing a degree is subject to mandatory advising prior to registration for any subsequent semester. Students with exceptional circumstances or those who are enrolled in special programs are required to develop a modified graduation plan that is appropriate to their situations. In all cases, students are responsible for meeting progress expectations and benchmarks required for their degree programs.

It is recommended that all students seek advising assistance prior to course registration. Students should also consult with an advisor as circumstances change and four year plans need to be updated. Many colleges have mandatory advising for prior to registering for a new semester.

Students placed on probation are required to consult an academic advisor in their college prior to the beginning of a new semester but no later than the end of the schedule adjustment period. Students will not be allowed to add or drop courses, or to register during any probation semester without the approval of an academic advisor in their college.

Student Academic Success-Degree Completion Policy

The goal of the Student Academic Success-Degree Completion Policy is to promote undergraduate student success. The policy establishes a structured framework and criteria to guide all students to completion of an undergraduate degree within a reasonable period of time.

Full-time degree seeking students normally are expected to complete the undergraduate program in four years. Within this timeframe, all students are expected to demonstrate continuing progress in their majors by completing prerequisite or required courses with the appropriate grades, and by completing other requirements consistent with graduation progress or benchmarks established by their academic units (see 2, below). It is ultimately the responsibility of the student to meet these requirements. To help students meet these requirements the university will facilitate student progress to degree by providing enhanced student advising through the following measures:

1. Academic units will create 4-year graduation templates that will specify the degree requirements for each major and provide semester-by-semester course schedule models that achieve graduation within four years. Students will prepare individualized plans for completing their degrees in accordance with the academic units' 4-year graduation plans. Students are also encouraged to periodically update their plans with the assistance of their academic advisors.

2. Academic units will establish graduation progress benchmarks for each academic major. These will specify the credit and course criteria that will indicate satisfactory progress to degree. Academic units will establish schedules for regular periodic reviews of student progress, and students who are in danger of falling behind the program benchmarks will be required to consult with an advisor prior to registration.

3. Students who do not achieve the progress expectations or benchmarks will be permitted to continue in the major only upon the approval of the dean of their college. If it becomes necessary for students to change majors, they will be given assistance in identifying and enrolling in a suitable alternative major.

4. When students change majors, they will be required to present an academic plan to the new major unit that demonstrates their ability to complete their degree in a timely manner.

While some students will have valid reasons to take additional time to degree, any student who completes 10 semesters or 130 credits (see footnote 1 for credits not counted towards these limits) without completing a degree will require mandatory advising in his/her college prior to registration for subsequent semesters. Students with exceptional circumstances, students whose programs include minors, double majors/degrees, enrichment activities or who need to pursue a degree part time will have on record approved plans with approved program benchmarks. Program benchmarks will be developed by the student in consultation with and approved by an advisor.

Footnote 1: Degree credits include University of Maryland credits and all applicable transfer credits from other postsecondary institutions. The equivalent semesters applicable to the

enrollment limit for transfer credits will be determined by dividing all transfer credits applicable to the degree by 15. However, Advanced Placement (AP) and International Baccalaureate (IB) credits, and credits earned for college courses taken while in high school and prior to matriculation at a postsecondary institution, will not count toward this semester or credit limitation. Such courses may, however, count toward degrees. Summer Session and Winter term will not be included in the semester count. Credits earned during Summer Sessions or Winter terms will be included in the credit count.

Student Academic Success-Degree Completion Policy

The goal of the Student Academic Success-Degree Completion Policy is to promote undergraduate student success. The policy establishes a structured framework to guide all students to completion of an undergraduate degree within a reasonable period of time. Academic units provide 4-year templates that students can use to develop a program of study that will meet the course requirements for a degree. Students are responsible for developing plans of study, with the assistance of their academic advisers. Academic units monitor student progress and assist students at risk of falling behind benchmarks in their plans. The policy in essence establishes a process to provide a pathway to completion of a degree for each student, initially created and then adjusted over time as needed to meet each student's particular circumstances. The policy is described in more detail in the section on Academic Advising.

(References to the policy: www.ugst.umd.edu/academicsuccess.html and to frequently asked questions: www.ugst.umd.edu/faqs-successpolicy.html).

Academic Integrity and Student Conduct Codes

Academic Integrity

The University of Maryland is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. Accordingly, the *Code of Academic Integrity* is designed to ensure that the principle of academic honesty is upheld. While all members of the University share this responsibility, the *Code of Academic Integrity* is designed so that special responsibility for upholding the principle of academic honesty lies with the students.

The University's *Code of Academic Integrity* is a nationally recognized honor code, administered by a Student Honor Council. Any of the following acts, when committed by a student, shall constitute academic dishonesty:

Cheating: fraud, deceit, or dishonesty in any academic course or exercise in an attempt to gain an unfair advantage and/or intentionally using or attempting to use unauthorized materials, information, or study aids in any academic course or exercise.

Fabrication: intentional and unauthorized falsification or invention of any information or citation in any academic course or exercise.

Facilitating academic dishonesty: Intentionally or knowingly helping or attempting to help another to violate any provision of the *Code of Academic Integrity*.

Plagiarism: Intentionally or knowingly representing the words or ideas of another as one's own in any academic course or exercise.

If it is determined that an act of academic dishonesty has occurred, a grade of "XF" is considered the normal sanction for undergraduate students. The grade of "XF" is noted on the academic transcript as failure due to academic dishonesty. Lesser or more severe sanctions may be imposed when there are circumstances to warrant such consideration. Suspension or expulsion from the University may be imposed even for a first offense.

Students should consult the *Code of Academic Integrity,* at http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-100a for further information regarding procedures for reporting and resolving allegations of academic dishonesty.

Honor Pledge

In 2002, the University adopted an honor pledge. The honor pledge is a reminder that University of Maryland students carry primary responsibility for academic integrity because the value of their degrees depends on it. On every examination, paper or other academic exercise not specifically exempted by the instructor, the student shall write by hand and sign the honor pledge. Signing the honor pledge affirms a sense of pride and integrity of students' work. The honor pledge states:

"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination."

Faculty are urged to emphasize the importance of academic honesty and of the honor pledge as its symbol. Failure to sign the honor pledge is not a violation of the *Code of Academic Integrity (Code),* but neither is it a defense in case of violation of the *Code*. Students who do not sign the honor pledge will be given the opportunity to do so. Refusal to sign the honor pledge must be explained to the instructor. Signing or non-signing of the honor pledge will not be considered in grading or disciplinary procedures. Material submitted electronically should contain the honor pledge; submission implies signing the honor pledge.

For more information regarding the Code of Academic Integrity, the honor pledge, or the Student Honor Council please refer to www.studentconduct.umd.edu or contact the Office of Student Conduct at 301-314-8204.

Summary of Policies and Regulations Pertaining to Students

Descriptions of these policies are for general information only. Please refer to specific texts for official language. Modifications may be made, or other policies added, throughout the year. Please contact the Office of Student Conduct for additional information.

In addition to the Code of Student Conduct (https://president.umd.edu/administration/policies/section-v-student-affairs/v-100b) and the Code of Academic Integrity (https://president.umd.edu/administration/policies/section-iii-academic-affairs/iii-100a) students enrolled at College Park are expected to be aware of, and to abide by, the policies summarized below. Information about where the complete texts may be consulted (other than the Code of Student Conduct) follows each summary.

Policy on Amplifying Equipment restricts the hours and locations of use of certain forms of sound amplifying equipment, provides a procedure for the authorization of otherwise restricted uses of sound amplifying equipment, and locates responsibility for complaints with those using the equipment. (Adopted by the University Senate, June 2, 1970.) For more information visit: http://thestamp.umd.edu/event_guest_services/policies#amplified

Stamp Student Union Policies regulate reservation of university facilities, advertising, co-sponsorship, cancellation and postponement, and various other matters relating to programs of student organizations. (Published in the Event Management Handbook. For more information, contact the Event and Guest Services Office.) For more information visit: http://thestamp.umd.edu/event_guest_services/policies

Acceptable Use of Information Technology Resources Policy defines standards for reasonable and acceptable use of university computer resources, including electronic mail. For more information visit: https://president.umd.edu/administration/policies/section-x-miscellaneous-policies/x-100a

Policy on Demonstrations establishes guidelines for demonstrations and picketing stipulates that the university will take steps necessary both to protect the right of individuals or groups to demonstrate and to protect the freedom of speech, assembly, and movement of any individual or group. (Adopted by the University Senate, June 2, 1970) For more information visit: http://thestamp.umd.edu/event_guest_services/policies#demonstrations

Examination Rules set general standards for student conduct during examinations. They are applicable to all examinations given at the College Park campus unless contrary instructions are provided by the faculty member administering the examination.

Policy on Hazing The University defines Hazing as recklessly or intentionally: 1) engaging in or enabling an act or situation that subjects another person to the risk of a) physical harm b) emotional distress, humiliation, degradation; c) harm from unreasonable requirements which interfere with a student's ability to function as a student, including financial requirements outside of membership dues; d) diminished physical or mental capacity, or 2) causing or encouraging another person to violate any law or University regulation. The implied or express consent of

another person is not a defense under this section. For more information visit: https://president.umd.edu/administration/policies/section-v-student-affairs/v-100k

Campus Parking Regulations cover registration, permits, fees, violations, enforcement, fines, towing and impounding, reviews, carpool programs, special events parking, emergency parking, and a number of other areas. The parking regulations are in effect to help ensure safe and adequate parking for the campus community and are designed to provide parking spaces as equitable as possible for students, faculty, staff and campus visitors. Parking regulations are updated annually and are provided electronically to all who register for parking. For more information visit: http://www.transportation.umd.edu/images/parking/PDFs/parking_regulations.pdf

Residence Hall Rules define prohibited conduct in and around campus residence halls, buildings, and at Department of Resident Life sponsored activities, in addition to that which falls under the Residence Halls/Dining Services Agreement, *Code of Student Conduct*, and federal, state and local laws. The rules also specify standard sanctions for rule violations, and provide for an adjudication process. For more information, contact the Department of Resident Life or visit www.reslife.umd.edu/communityhandbook/.

Sexual Misconduct Policy and Procedures defines prohibited behavior including possible sanctions for violations of the policy, offers guidance for complainants including how to make a formal report to the University and to the police. Additionally, the policy defines confidential resources on campus for reporting. A collection of university and community resources are provided for parties, including possible interim protective measures. For more information contact the Office of Civil Rights and Sexual Misconduct at http://www.ocrsm.umd.edu/ or visit: https://president.umd.edu/administration/policies/section-vi-general-administration/vi-160a-0

Student Organization Registration Guidelines define student organizations, responsibilities of officers, and registration, and establish types of registration, a registration process, certain privileges of registered student organizations in good standing, sanctions which may result from registration review, and guidelines for constitutions. For more information contact the Student Organization Resource Center located on the ground floor in the Stamp Student Union. For more information visit: http://thestamp.umd.edu/student_org_resource_center_sorc/organization_registration_information/guidelines_to_become_a_registered_organization

Student Conduct

The primary purpose for the imposition of discipline in the university setting is to protect the campus community. Consistent with that purpose, reasonable efforts are also made to foster the personal and social development of those students who are held accountable for violations of university regulations. Compared to disciplinary systems at many universities, University of Maryland students are given unusual authority and responsibility for management of the campus process. Membership on the student judiciary is an extraordinary educational experience, and opportunity to be of service to the community, and a personal honor.

Cases that may result in suspension or expulsion are heard by conduct boards, comprised entirely of students. In such cases, students are accorded substantial procedural protections, including an opportunity for a hearing and an appeal. Less serious cases are resolved in disciplinary conferences conducted by University staff members. Acts of violence, intimidation, disruption, or rioting; substantial theft or vandalism; fraud or forgery; use or distribution of illegal drugs; are forms of misconduct that most frequently result in dismissal from the University. Students accused of violating University disciplinary regulations are encouraged to discuss the allegations with their parents or guardians, legal counsel, and with appropriate university staff members.

Prohibited Conduct

A complete list of conduct considered prohibited as well procedures for resolving allegations of misconduct may be found in the *Code of Student Conduct* at www.president.umd.edu/policies or through the Office of Student Conduct website at www.studentconduct.umd.edu.
The following is general notice of what constitutes prohibited conduct and is subject to disciplinary action:

- Use, possession or storage of any weapon
- Causing physical harm or apprehension of harm
- Initiating or causing to be initiated a false report, warning or threat of fire, explosion or other emergency
- A criminal offense committed off-campus
- Violating the terms of any disciplinary sanction
- Misusing or damaging fire safety equipment
- Distribution or possession for purposes of distribution of any illegal drug
- Furnishing false information to the University
- Making, possessing, or using any forged, altered, or falsified instrument of identification
- Interfering with the freedom of expression of others
- Theft of property or of services; possession of stolen property
- Destroying or damaging the property of others
- Engaging in disorderly or disruptive conduct
- Failure to comply with the directions of university officials
- Use or possession of any illegal drug or controlled substances
- Use or possession of fireworks
- Use or possession of any alcoholic beverage under the age of 21 or providing alcoholic beverages to a person known to be under the age of 21
- Violation of published university regulations or policies including the residence hall contract, as well as those regulations relating to entry and use of University facilities, sale of alcoholic beverages, use of vehicles and amplifying equipment, campus demonstrations, misuse of identification cards, sexual misconduct, hazing, acceptable use, and parking regulations.

Note: This Code does not apply to student sexual misconduct. The policy and procedures applicable to student sexual misconduct is VI-1.60(A) University of Maryland Sexual Misconduct Policy & Procedures at

http://www.president.umd.edu/administration/policies/section-vi-general-administration/vi-160a-0.

Note: Effective April 2006, students who violate the following section will be dismissed from the University:

> *Rioting, assault, theft, vandalism, fire-setting, or other serious misconduct related to a University-sponsored event, occurring on- or off-campus, that results in harm to persons or property or otherwise poses a threat to the stability of the campus or campus community may result in disciplinary action regardless of the existence, status, or outcome of any criminal charges in a court of law related to misconduct associated with a university-sponsored event.*

For more information regarding student conduct issues, contact the Office of Student Conduct at 301-314-8204 or visit www.studentconduct.umd.edu.

Academic Records and Regulations

The Office of the Registrar, located on the first floor of the Clarence M. Mitchell Jr. Building, is responsible for maintaining student records and issuing official transcripts.

Academic Clemency Policy

III-1.30(A) UNIVERSITY OF MARYLAND POLICY AND PROCEDURES ON ACADEMIC CLEMENCY (Approved by the President August 1, 1991, Amended April 21, 2016)

Undergraduate degree-seeking students who have reenrolled at the University of Maryland in pursuit of their initial baccalaureate degree are eligible, after a separation of at least five calendar years from the University (determined by the last day of the last attended semester), for academic clemency. Academic clemency is granted one time only, and subsequent requests will be denied.

Application for academic clemency must be filed with the Office of Undergraduate Studies (or designee) as soon as possible, and before the end of the first semester of the student's return to the University. Clemency will be recorded on the student's record following the completion of the student's first semester of reenrollment. Under clemency, up to 16 attempted credits of D+, D, D-, and F grades from courses previously completed at the University of Maryland will be removed from the calculation of the student's cumulative grade point average (GPA).

Attempted credits and grades for which clemency is granted will:

1. remain on the student's transcript;
2. not be used to satisfy degree requirements;
3. be excluded from the student's cumulative GPA calculation;
4. remain included in the calculation of Latin Honors; and
5. adhere to the institution's repeat guidelines and be included in the student's repeat limits.

The granting of clemency is contingent upon the student's satisfactory completion of the initial semester of reenrollment, and will be recorded by the university at that time. If the student's first semester of registration upon reenrollment is canceled, or the student withdraws from the semester, clemency will not be granted (and the student will retain the option of filing for clemency in the future).

(Policy can be found here: http://president.umd.edu/administration/policies/section-iii-academic-affairs/iii-130a)

Academic Probation and Dismissal

Consistent with the University of Maryland Student Academic Success - Degree Completion Policy, it is the intent of the University that its students make satisfactory progress toward their degree objectives, and achieve academic success. If a student has special circumstances that make it impossible to complete a normal course load, the student must meet with an advisor to discuss the circumstances, the student's plans for continued progress toward a degree, and the implications for continued enrollment.

The following guidelines for retention of students refer separately to semester (Fall and Spring) and Winter or Summer terms:

a. Academic retention is based solely on grade point average (GPA). A minimum of 120 successfully completed course credits is required for graduation in any degree curriculum. Individual colleges, schools, and departments may establish higher requirements for graduation. Students must consult the appropriate college, school, or department for specific information.

b. Satisfactory Performance is defined as the achievement of a cumulative GPA of 2.0 or above. Students whose semester GPA falls below 2.0 are encouraged to meet with their advisors regarding the development of a plan that will appropriately respond to the student's academic difficulties and lead to academic improvement. Individual colleges, schools and departments may establish separate requirements for mandatory advising. Students must consult the appropriate college, school, or department for specific information.

c. Unsatisfactory Performance is defined as the achievement of a cumulative GPA of less than 2.0. Students will be placed on Academic Probation following any semester in which a 2.0 cumulative GPA is not achieved. Normally, students will be placed on Academic Dismissal if they are unable to raise their cumulative GPA to 2.0 or higher at the end of their probationary semester.

Academic Probation:

Students will be placed on academic probation if their cumulative GPA falls below 2.0. Normally, a student is expected to attain a 2.0 cumulative GPA at the end of any probationary semester. Students who fail to achieve a 2.0 cumulative GPA at the end of their probationary semester may be academically dismissed, depending on their credit level as detailed below.

1. Students who have earned 60 credits or more will be dismissed from the University in the event their cumulative GPA remains below 2.0 at the end of their probationary semester. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.

2. Students who are on academic probation and have earned fewer than 60 credits will be permitted to continue on academic probation if a minimum semester GPA of 2.0 is achieved in each semester of probation.

a. Full-time students must complete 9 or more credits in each semester of probation. A completed credit is defined as credit for any course in which a student receives a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-. F, P, or S.

b. Students who meet this requirement will be permitted to continue on probation until the close of the semester (excluding winter and summer terms) in which they attain a cumulative GPA of 2.0.

c. However, students who are on probation will be dismissed if they have not achieved a cumulative GPA of 2.0 at the end of the semester in which they complete 60 credits.

d. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.

3. The Office of the Registrar will notify students when they are placed on academic probation. Such notices will include a requirement that the students consult an academic advisor in their colleges early in the probationary semester and in no event later than the beginning of the early registration period for the next semester. The Office of the Registrar will notify the colleges of students who are placed on academic probation and will note the academic probationary status on the students' academic record.

a. The academic advisors will assist students in developing appropriate plans for achieving satisfactory academic performance.

b. Students who are placed on probation will not be allowed to add or drop courses, or register without the approval of an academic advisor in their college.

Academic Dismissal:

1. Students who have earned 60 or more credits will be dismissed if their cumulative GPA remains below 2.0 for two consecutive semesters (excluding winter and summer terms). Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.

2. Students who have earned fewer than 60 credits will be dismissed following any probationary semester in which they fail to attain a minimum 2.0 semester GPA and complete the requisite credits detailed under Academic Probation. Students who attain a cumulative GPA of 2.0 in the

preceding winter or summer term will not be subject to dismissal.

3. Students who have been academically dismissed and who are reinstated will be academically dismissed again if a cumulative GPA of at least 2.0 is not achieved by the end of the first semester after reinstatement. Reinstated students will not be allowed to add or drop courses, or to register during any semester without the approval of an academic advisor in their college, unless a cumulative GPA of at least 2.0 is achieved.

4. The Office of the Registrar will notify the appropriate University offices when students are academically dismissed and will note the dismissal on the student's academic record.

5. The Student Success Office will notify students via email. The email will include a statement that registration for the next semester (excluding winter or summer terms) will be canceled.

Application for Academic Reinstatement:

1. Students who have been dismissed may apply to the Faculty Petition Board for reinstatement on the grounds of mitigating circumstance.

2. The application for reinstatement must include a written statement explaining the circumstances leading to dismissal and a proposed plan to remedy those circumstances. Students are encouraged to consult with their academic advisors prior to submitting their applications to the Faculty Petition Board.

3. Applications for reinstatement can be completed at http://www.studentsuccess.umd.edu/application.php.

Faculty Petition Board:

1. The Student Success Office is responsible for submitting the reinstatement applications for review to the Faculty Petition Board, which is comprised of faculty appointed by the Senior Vice President for Academic Affairs and Provost. The Board is the sole arbiter of reinstatement applications.

2. The Faculty Petition Board has the discretion to establish the terms for reinstatement, including the requirements for achieving academic improvement and developing an academic plan for success.

3. The Student Success Office will forward the Board's decision to students at the email address supplied on the application.

Dismissal of Delinquent Students:

The University reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the University would be detrimental to his or her health, or the health of others, or whose conduct is not

satisfactory to the authorities of the university. Additional information about the dismissal of delinquent students may be found in the Code of Student Conduct.

Computation of Grade Point Average

GPA is computed by dividing the total number of quality points accumulated in courses for which a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, or XF has been assigned by the total number of credits attempted in those courses. Courses for which a mark of P, S, I, NGR or W has been assigned are not included in computing the GPA. Each letter grade has a numerical value: A+=4, A=4, A- = 3.7; B+=3.3, B=3, B- = 2.7; C+=2.3, C=2, C- = 1.7; D+=1.3, D=1, D- = 0.7; F = 0. Multiplying this value by the number of credits for a particular course gives the number of quality points earned for that course.

See Repeat Policy to determine the effect of repeated courses in the calculation of GPA.

Graduation Applications and Latin Honors

Graduation Applications

Each candidate for a degree or certificate must file a formal application with the Office of the Registrar. The deadline for application is the end of the schedule adjustment period for the semester in which the student plans to graduate, or at the end of the first week of the second summer session for August degrees.

In all cases, graduation applications must be filed at the beginning of the student's final semester before receiving a degree. The graduation applications are available on the internet at www.testudo.umd.edu or at the Registrar's Office, 1st floor Clarence M. Mitchell Jr. Building.

Latin Honors

Summa cum laude, magna cum laude and cum laude are the highest Latin honors that the University bestows for sustained excellence in scholarship. They are awarded to the top 10% of all students graduating in each College or School. Summa cum laude is awarded to students with a GPA equal to or greater than the highest two percent of GPAs from the specific College or School averaged over the previous academic year, magna cum laude to the next highest three percent, and cum laude to the following five percent. To be eligible for this recognition, at least 60 semester hours must be earned at the University or at a program in which credit earned is counted as University of Maryland, College Park, resident credit (contact the Office of the Registrar to determine program eligibility). No more than 6 credits taken pass/fail or satisfactory/fail grade modes shall count toward the 60-hour minimum. No student with a grade-point average of less than 3.3 will be considered for a Latin honor. See the Office of the Registrar's website (www.registrar.umd.edu) for a list of minimum GPA cut-offs (for the current year) for each honor designation, published by College or School.

Election to Phi Beta Kappa

Organized in 1776, Phi Beta Kappa is the oldest and most widely respected academic honorary society in the United States. Invitation to membership is based on outstanding scholastic achievement in studies of the liberal arts and sciences. Student members are chosen entirely on the basis of academic excellence; neither extracurricular leadership nor service to the community is considered. Election is held twice a year, once in the fall and once in the spring semester.

The process for election to Phi Beta Kappa involves a review in November for those who graduated the previous August or those who will graduate in December, and a review in March for those graduating in May. For juniors the review occurs in March. The review is conducted by a select committee of faculty members representing the humanities, social sciences, and natural sciences. The committee reviews transcripts of all students with qualifying grade point averages. Whether a student qualifies for membership in Phi Beta Kappa depends on the quality, depth, and breadth of the student's record in liberal courses. The final decision for election rests with the faculty committee and faculty Phi Beta Kappa members.

Requirements for consideration of membership in Phi Beta Kappa at the University of Maryland, College Park campus chapter include:

1. Grade Point Average: For seniors a grade point average of at least 3.75 overall as well as in all liberal arts and sciences courses taken. For juniors the minimum grade point average is at least 3.85. National PBK rules, however, require that no more than 20 percent of the students elected in any one year can be juniors, so the actual minimum grade point average for junior admission may be higher than 3.85.

2. Residence: At least 60 credit hours must be taken at the University of Maryland, College Park.

3. Liberal Courses: For seniors, at least 90 credit hours in courses in the liberal arts and sciences (where "liberal" courses are to be distinguished from professional or technical courses), at least 45 of which must be taken at the University of Maryland, College Park. For juniors, at least 75 total credit hours must be completed, at least 60 of which are in courses in the liberal arts and sciences; of these, at least 45 must be taken at the University of Maryland, College Park. Students would ordinarily be majors in one of the programs in the liberal arts and sciences. However, students with the requisite number of liberal credit hours can be admitted if they have completed at least 5 courses (15 credit hours or more) for seniors and for juniors in a single liberal arts and sciences department/program at UMCP.

4. Required courses: One semester of mathematics, which must be fulfilled by college-level credit hours (including AP or IB credit, but not exemption by SAT), and two college semesters of the same foreign language at the elementary level, or at least one semester above that level. The language requirement may also be satisfied by completion of four years of the same language other than English at the high-school level or above, or the equivalent. Students with such a foreign language background who wish to be considered for admission to Phi Beta Kappa should notify the Phi Beta Kappa office (2110 Marie Mount Hall) in writing and provide the

appropriate documentation (an official high school transcript) prior to the month of consideration. Juniors providing late documentation (after March 1) will be considered only as seniors.

5. Distribution: The credit hours presented for Phi Beta Kappa must contain at least nine liberal arts credit hours in each of the three following areas: (a) arts and humanities, (b) behavioral and social sciences, (c) natural sciences and mathematics (including a laboratory science course). The laboratory science course cannot be fulfilled by AP or IB credit. All the courses in at least two of the three required areas must be completed at the University of Maryland, College Park, and in the remaining area no more than one AP or IB course can be used to fulfill the requirement. In general, Phi Beta Kappa will accept the General Education classification of courses. AP or IB History courses will be considered as satisfying only the arts and humanities requirement.

Students with more challenging courses and moderately high grade point averages are preferred by the committee to those with higher grade point averages but a narrow range of courses. Minimal qualifications in more than one area may preclude election to Phi Beta Kappa.

Recommended Criteria Include:

- Regular grades (rather than pass/fail) in mathematics, foreign language courses, and distribution areas.
- Some traditional social sciences and humanities courses that require written essays and papers. (Note that internships may be counted as professional courses and not as liberal courses).

Meeting the above requirements does not guarantee election to Phi Beta Kappa. The judgment of the resident faculty members of Phi Beta Kappa on the quality, depth, and breadth of the student's record is the deciding factor in every case. Any questions about criteria for election to Phi Beta Kappa (including equivalency examinations in foreign languages) should be directed to the Phi Beta Kappa Office, Dr. Denis Sullivan, and 301-405-8986.

Honors (Dean's List)

Semester Academic Honors (Dean's List) are awarded to students who - within any given semester (excluding winter and summer terms) - complete 12 or more credits with a semester GPA of 3.5 or higher. This recognition is noted on the student's academic record.

Please Note: Courses with grades of P and S are excluded from the calculation.

Incompletes

The mark of 'I' is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark 'I' be recorded for a student who has not completed the major portion of the work of the course.

1. This Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted). If any Incomplete Contract isn't completed within the six week period, the instructor will convert the 'I' to the appropriate grade.

2. The student will remove the 'I' by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on schedule, the instructor will convert the 'I' to the grade indicated by the contract.

3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty member's dean) upon the written request of the student if circumstances warrant further delay.

4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.

5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.

6. The 'I' cannot be removed through re-registration for the course or through credit by examination. An 'I' mark is not used in the computation of quality points or cumulative grade point averages.

Marking System

The following symbols are used on the student's permanent record for all courses in which the student is enrolled after the initial registration and schedule adjustment period: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, XF, I, P, S, W, and AU. These marks remain as part of the student's permanent record and may be changed only by the original instructor on certification, approved by the department chair and the dean, that an actual mistake was made in determining or recording the grade.

- A+, A, A- denotes excellent mastery of the subject and outstanding scholarship. In computations of cumulative or semester averages, a grade of A+ or A will be assigned a value of 4.0 quality points per credit hour. A grade of A- will be assigned 3.7 quality points per credit hour.
- B+, B, B- denotes good mastery of the subject and good scholarship. A grade of B+ is assigned a value of 3.3 quality points per hour. A grade of B is assigned a value of 3.0 quality points per credit hour. A grade of B- is assigned a value of 2.7 quality points per hour.
- C+, C, C- denotes acceptable mastery of the subject. A grade of C+ is assigned a value of 2.3 quality points per hour. A grade of C is assigned a value of 2.0 points per credit hour. A grade of C- is assigned a value of 1.7 quality points per credit hour.

- D+, D, D- denotes borderline understanding of the subject, marginal performance, and it does not represent satisfactory progress toward a degree. A grade of D+ is assigned 1.3 points per credit hour. A grade of D is assigned a value of 1.0 quality point per credit hour. A grade of D- is assigned 0.7 quality points per credit.
- F denotes failure to understand the subject and unsatisfactory performance. A grade of F is assigned a value of 0.0 quality points per credit hour.
- XF denotes failure due to academic dishonesty. An XF is treated in the same way as F for the purposes of cumulative average.
- The mark of 'I' is an exceptional mark that is an instructor option. It is only given to a student whose work has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark 'I' be recorded for a student who has not completed the major portion of the work of the course. For further explanation see "Incompletes" below.
- The mark of P is a student option mark, equivalent to a grade of D- or better. This grade is not used in any computation of quality points or cumulative average totals at the end of the semester. The student must inform the Office of the Registrar of the selection of this option by the end of the schedule adjustment period. For a full explanation see "Pass-Fail Policy" below.
- S is a department option mark that may be used to denote satisfactory performance by a student in progressing thesis projects, orientation courses, practice teaching, and the like. In computation of cumulative averages a mark of S will not be included.
- W is used to indicate withdrawal from a course after the end of the schedule adjustment period. For information and completeness, the grade of W is placed on the student's permanent record by the Office of the Registrar. The instructor will be notified that the student has withdrawn from the course. This grade is not used in any computation of quality points or cumulative average totals at the end of the semester.
- AU denotes a student registering to audit a course or courses which have been designated as available under the audit option and in which space is available. The notation AU will be placed on the transcript for each course audited. A notation to the effect that this symbol does not imply attendance or any other effort in the course will be included on the transcript in the explanation of the grading system.

(Policy can be found here: http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-600a)

Additional Record Notations
In addition to the above marks, there are provisions for other record or transcript notations that may be used based on university policy and individual circumstances.

Duplicate course*:* Used to indicate two courses with the same course content. The second course is counted in the cumulative totals unless an exception is made by the dean.

Excluded Credit (Excl Crd)*:* Excluded credit is noted when academic clemency has been granted.

Incompletes: The mark of 'I' is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark 'I' be recorded for a student who has not completed the major portion of the work of the course.

1. This Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted). If any Incomplete Contract isn't completed within the six week period, the instructor will convert the 'I' to the appropriate grade.

2. The student will remove the 'I' by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on schedule, the instructor will convert the 'I' to the grade indicated by the contract.

3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty member's dean) upon the written request of the student if circumstances warrant further delay.

4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.

5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.

6. The 'I' cannot be removed through re-registration for the course or through credit by examination. An 'I' mark is not used in the computation of quality points or cumulative grade point averages.

Mid-Term Grades

Mid-Term Grades shall be submitted for undergraduate students as detailed below. These grades are an important component of student success, as they provide timely feedback to students about the University's academic expectations. Mid-term Grades are used to inform students of their performance in the course during roughly the first half of the semester; they are used for advising purposes and are not recorded on the student's academic transcript.

1. Mid-Term Grades must be submitted for all of the following:

- Undergraduate students enrolled in their first year (fewer than 30 credits earned at the University of Maryland),
- Undergraduate students in all 0xx, 1xx, and 2xx level courses,
- Student athletes in undergraduate courses.

2. Mid-Term Grades are due eight (8) weeks after the start of the semester.

3. Department Chair or Unit Head must approve any courses for which Mid-Term Grades cannot be issued.

4. Instructors who have students who require Mid-Term Grades will be prompted to submit Mid-Term Grades. If instructors do not have such students, they will not need to submit Mid-Term Grades.

5. Mid-Term Grades should be issued in the grading mode for the course.

6. Satisfactory/unsatisfactory (S/U) marks may be used.

7. All Mid-Term Grades must be submitted as specified by the Office of the Registrar.

For more information, see http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-600b.

Pass-Fail Policy

Pass-Fail Policy: The following Pass-Fail policy was approved by the Board of Regents for implementation beginning with the Spring 1989 semester:

1. To register for a course under the pass-fail option, an undergraduate must have completed 30 or more credit hours of college credit with a GPA of at least 2.0. At least 15 of these credit hours must have been completed at the University of Maryland, College Park with a University of Maryland GPA of at least 2.0.

2. Courses for which this option applies must be electives in the student's program. The courses may not be college, major, field of concentration, or general education program requirements.

3. Only one course per semester may be registered for under the pass-fail option.

4. No more than 12 semester hours of credit may be taken under the pass-fail option during a student's college career.

5. Students may not choose this option when re-registering for a course.

6. When registering under the pass-fail option, a course that is passed will count as hours in the student's record but will not be computed in the grade point average. A course that is failed will appear on the student's record and will be computed both in the overall average and the semester average.

7. Students registering for a course under the pass-fail option are required to complete all regular course requirements. Their work will be evaluated by the instructor by the normal procedure for letter grades. The instructor will submit the normal grade. The grades A+, A, A-,

B+, B, B-, C+, C, C-, D+, D or D- will automatically be converted by the Office of the Registrar to the grade P on the student's permanent record. The grade F will remain as given. The choice of grading option may be changed only during the schedule adjustment period for courses in which the student is currently registered.

Repeat Policy

The following Campus Repeat Policy applies to ALL courses that may not be repeated for additional credit.

1. The following students are required to follow the repeat policy effective Fall 1990:

    a. All new freshmen who began at University of Maryland, College Park Fall 1990 and after.

    b. Transfer students from schools other than Maryland community colleges who began at University of Maryland, College Park, Fall 1990 and after. This includes transfer students from another University of Maryland institution.

2. There is a limit to the number of times a student may repeat a course. Students may have one repeat of any course in which they earned an A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, P, S, W, NG or Audit; they cannot be registered (after the schedule adjustment period) for any given course more than twice. A student's deans office may grant an exception allowing an additional course repeat. In this case, students must present a plan for successfully completing the course. All attempts *will* be counted toward the total limit for repeatable credits.

***Note**: Students may not choose the Pass-Fail option when re-registering for a course or re-register for a course in which a grade of "I" has been noted.*

3. Students may repeat no more than 18 credits. Additionally, if a student withdraws from *all* courses during a semester, those courses are not included in this limit.

4. The grade point average will include all attempts at a given course that result in a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F. However, to help freshmen and transfer students adjust to the University of Maryland, College Park, the following two exceptions allow for the cumulative GPA to be calculated so that only the higher grade is included:

    a. When the repeated course was taken within the students first semester at University of Maryland, College Park, or

    b. When the repeated course was taken within the students first 24 credit hours attempted (including transfer credits) or within the semester during which the student reached the 24th credit hour attempted. Advanced Placement Exam credits do not count toward the 24 credit count.

5. Any grade earned in prior attempts of a repeated course will appear on the student's transcript, regardless of whether the grade is dropped from, or included in, the cumulative grade point average.

6. Repeat by transfer: If a student repeats by transfer a course that was taken before or during the semester in which the student reached 24 credits attempted (including transfer credits) and the transfer grade is higher, then the original grade in the course will be excluded from the GPA calculation.

    a. If the course was taken after the semester in which the student reached 24 credits attempted, the original grade remains in the GPA calculation.

Repeat Policy Prior to Fall 1990:

The following students follow the *previous* repeat policy:

- Students who began at University of Maryland, College Park, before the Fall 1990 semester (including students who enter University of Maryland, College Park for summer 1990).
- Transfer students who began at a Maryland community college before Fall 1990.
- UMBC College of Engineering students who began before 1990.

The highest grade received in the repeated course is used to calculate the GPA. A student may repeat any course; however no student may be registered for a course more than three times.

If a student repeats a course in which he or she has already earned a mark of A, B, C, D, P, or S, the subsequent attempt shall not increase the total hours earned toward the degree. Only the highest mark will be used in computation of the student's cumulative average. Under unusual circumstances, the student's dean may grant an exception to this policy.

Statement on Classroom Climate

The University of Maryland values the diversity of its student body and is committed to providing a classroom atmosphere that encourages the equitable participation of all students. Patterns of interaction in the classroom between the faculty member and students and among the students themselves may inadvertently communicate preconceptions about student abilities based on age, disability, ethnicity, gender, national origin, race, religion, or sexual orientation. These patterns are due in part to the differences the students themselves bring to the classroom. Classroom instructors should be particularly sensitive to being equitable in the opportunities they provide students to answer questions in class, to contribute their own ideas, and to participate fully in projects in and outside of the classroom.

Of equal importance to equity in the classroom is the need to attend to potential devaluation of students that can occur by reference to demeaning stereotypes of any group and/or overlooking the contributions of a particular group to the topic under discussion. Joking at the expense of any group creates an inhospitable environment and is inappropriate. Moreover, in providing

evaluations of students, it is essential that instructors avoid distorting these evaluations with preconceived expectations about the intellectual capacities of any group.

It is the responsibility of individual faculty members to review their classroom behaviors, and those of any teaching assistants they supervise, to ensure that students are treated equitably and not discouraged or devalued based on their differences. Resources for self-evaluation and training for faculty members on classroom climate and interaction patterns are available from the Office of Human Relations.

Syllabus, Attendance, Absences, and Assessment

Syllabus

There shall be a complete course syllabus for the current term made available to students no later than the first day of class at the beginning of each undergraduate course. Any changes to the syllabus made after the first day of class must be announced and must be clearly represented with the date of the revision. The course syllabus will specify in general terms:

- a course description including course objectives;
- the content and nature of assignments;
- the schedule of major graded assessments (e.g., examinations and due dates for projects and papers);
- the examination and/or assessment procedures;
- the mode of communication for excused absences;
- the basis for determining final grades, including if the plus/minus grading system will be used and the relationship between in-class participation and the final course grade;
- reference to the list of course-related policies maintained by the Office of Undergraduate Studies.

Attendance

Students are expected to take full responsibility for their own academic work and progress. Students, to progress satisfactorily, must meet all of the requirements of each course for which they are registered. Students are expected to attend classes regularly. Consistent attendance offers students the most effective opportunity to gain command of course concepts and materials.

In-class participation may be an ongoing requirement and an integral part of the work of some courses. In-class assessments may occur, sometimes without advance notice. The syllabus will specify expectations about in-class participation and its relationship to the final course grade.

Except in cases where in-class participation forms a significant part of the work of the course, attendance should not be used in the computation of grades; assignment of a course grade on some basis other than performance in the course is prohibited by University policy. Recording student attendance is not required of the faculty.

Absences

Absences from courses in which in-class participation forms a significant part of the work of the course (such as lab or discussion courses) shall be handled by instructors in accordance with the general policies of their academic units.

An excused absence is an absence for which the student has the right to receive, and the instructor has the responsibility to provide, academic accommodation.

Excused absences must be requested promptly and must be supported by appropriate documentation. Excused absences do not alter the academic requirements for the course. Students are responsible for information and material missed on the day of absence. Students are within reason entitled to receive any materials provided to the class during the absence. Students are responsible for determining what course material they have missed and for completing required exercises in a timely manner.

Events that justify an excused absence include: religious observances; mandatory military obligation; illness of the student or illness of an immediate family member; participation in university activities at the request of university authorities; and compelling circumstances beyond the student's control (e.g., death in the family, required court appearance). Absences stemming from work duties other than military obligation (e.g., unexpected changes in shift assignments) and traffic/transit problems do not typically qualify for excused absence.

Students claiming excused absence must notify the course instructor in a timely manner and provide appropriate documentation. The notification should be provided either prior to the absence or as soon afterwards as possible. In the case of religious observances, athletic events, and planned absences known at the beginning of the semester, the student must inform the instructor during the schedule adjustment period. All other absences must be reported as soon as is practical. The student must provide appropriate documentation of the absence. The documentation must be provided in writing to the instructor by the means specified in the syllabus.

a. For medically necessitated absences: Students may, one time per course per semester, provide a self-signed excuse as documentation of an absence from a single class (e.g., lecture, recitation, or laboratory session) that does not coincide with a major assessment or assignment due date. For all other medically necessitated absences, students must provide documentation from a physician or the University Health Center, upon request of the course instructor.

b. For all other absences students must provide verifiable documentation upon request (e.g., religious calendar, court summons, death announcement, etc.).

In keeping with USM policy, students shall not be penalized because of observances of their religious holidays and shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. For all other excused absences, the student must be provided academic

accommodation. The accommodation provided should, within reason, neither advantage nor disadvantage either the student or the rest of the class.

If the accommodation is a makeup assessment, it must be timely, at a time and place agreed upon by the instructor and student, cover the same material, and be at the same level of difficulty as the original assessment. In the event that a group of students requires the same makeup assessment, one time and place may be scheduled. The makeup assessment must not interfere with the student's regularly scheduled classes. If makeup work is not feasible, an alternate accommodation for excused absences will be provided. Alternate accommodations will be according to the principles established by the unit offering the course. Students who miss a substantial number of class sessions or course assignments should seek guidance from an academic advisor with respect to academic options.

Extended absences stemming from active military duty are addressed in the USM V-7.00

Policy on Students who are called to Active Military Duty during a National or International Crisis or Conflict. Absences related to a student’s disability are addressed in the VI-1.00(D) University of Maryland Disability & Accessibility Policy and Procedures.

Although the university attempts to accommodate the religious beliefs of all of its members, it functions within a secular environment and is limited in the extent to which it can interrupt its normal operations. The president shall determine when it is appropriate for the campus community to restrict rescheduling examinations or other significant assessments on the dates of religious observance.

Assessment

Students can expect to receive a reasonable number of graded assessments or progress reports to permit evaluation of their performance. These assessments shall be returned to the students in a timely manner. Students will have reasonable opportunity to review graded assignments, such as papers and examinations (including the final examination or assessment), after evaluation by the instructor and while materials are reasonably current. Information about assessments and determination of the final course grade will be presented in a course syllabus.

Ordinarily, in-class assessments are given during class hours in accordance with the regularly scheduled time and place of each course. Students are responsible for knowing the information in the syllabus, including dates of assessments and due dates of graded assignments. Assessments may take a variety of forms and need not be classroom-based written examinations.

Final Examination: There shall be a final examination and/or assessment in every undergraduate course. Exceptions may be made with the written approval of the department chair or other appropriate unit administrator.

Each faculty member shall retain, for one full semester (either fall or spring) after a course is ended, the students’ final assessments in the appropriate medium. If a faculty member goes on leave for a semester or longer, or leaves the university, the faculty member shall leave the final

assessments and grade records for the course with the department chair, the program director, or the dean of the College or School, as appropriate.

All in-class final examinations must be held on the date and at the time listed in the official final examination schedule. Out-of-class final examination or equivalent assessments shall be due on the date and at a time listed in the official final examination schedule. Changes to final examination schedules and locations must be approved by the chair of the department or the dean of the College, or the appropriate designee. However, final examinations or assessments may not be rescheduled to the final week of classes or to Reading Day.

Students may seek to reschedule final examinations so that they have no more than three examinations on any given day. It is the responsibility of the student to initiate the rescheduling or be responsible for taking the examination as originally scheduled. When rescheduling is desired, students should first contact their instructors. Students who encounter difficulty rescheduling examinations with their instructors are advised to contact the dean's office of their academic program for help. Faculty members are expected to accommodate students with legitimate rescheduling requests.

Resolution of Problems

Any concerns regarding the syllabus, attendance, absences and assessment should be addressed to the course instructor. In the case of unresolved concerns, students are encouraged to consult the following policies for appropriate resolution.

Relevant University Policies:

- V-1.00(A) UNIVERSITY OF MARYLAND POLICY ON THE CONDUCT OF UNDERGRADUATE COURSES AND STUDENT GRIEVANCE PROCEDURE
    - http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100a-0
- III-1.20(A) UNIVERSITY OF MARYLAND GRADUATE POLICY AND PROCEDURES FOR REVIEW OF ALLEGED ARBITRARY AND CAPRICIOUS GRADING
    - http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-120a
- V-1.00(G) UNIVERSITY OF MARYLAND POLICY ON EXCUSED ABSENCE
    - http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100g

Degree Information

Combined Bachelor's/Master's Programs

In a combined bachelor's/master's program, some graduate level courses initially taken for undergraduate credit may also be applied towards the graduate credit requirements for a master's degree program at the University of Maryland. A bachelor's/master's program may be developed

for an individual student, or it may be a structured program.

Individual Student Bachelor's/Master's Program: A program may be developed by an individual student in consultation with his/her academic advisor. Such a program is available only to students whose academic performance is exceptional. It is to be developed according to the individual career interests and goals of the student and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. The program requires the approval of the directors of both the undergraduate and the graduate programs involved and of the Dean for Office of Undergraduate Studies and the Dean of the Graduate School. Normally, no more than nine credits of graduate courses applied to the bachelor's degree may be counted also for graduate credit in an individual student program. Courses to be double-counted must be at the 600-level or above and must be passed with at least a 'B' grade. Individual study courses, internships, or courses given credit by examination are not eligible. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

Structured Bachelor's/Master's Program: A structured bachelor's/ master's program is an articulated curriculum combining an existing undergraduate program and an existing master's program at the University of Maryland, offered by the same or by different departments. Such a program is to be designed for students whose academic performance is exceptional and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. A proposal for such a program should be submitted by the college(s) housing the academic programs concerned and requires the approval of the Graduate Council, the Graduate Dean, the Senate PCC Committee, and the Provost.

Necessary features of a structured bachelor's/master's program include the following:

a. There must be specific requirements for admission to the combined program that speak to the exceptional performance of the students to be admitted. At a minimum, students accepted for the program must be clearly admissible to the graduate program portion.

b. The program should be designed so as not to unduly delay the student's receipt of their bachelor's degrees. Taking graduate credits should not unduly limit the breadth of the student's experience through premature specialization.

c. All requirements of the bachelor's program and of the master's program must be completed to receive the two degrees. Where appropriate, graduate courses taken while an undergraduate may substitute for courses required in the undergraduate major program.

d. The student may be offered deferred admission to the graduate school at the end of the Junior year program, subject to completion of the senior year program in a timely fashion and with a specified level of achievement. Formal admission to the graduate school will require completion of all requirements for the bachelor's degree.

e. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

A structured bachelor's/master's program may normally include up to nine credits of graduate level courses (600-level and above) that are counted both for the bachelor's program and the master's program. More than nine double-counted credits may be allowed if both of the following conditions are satisfied.

a. The additional graduate credits applied to the undergraduate program do not unduly limit the breadth of the student's experience through premature specialization. This condition may be satisfied, for example, if the graduate credits substitute for courses required in the undergraduate program that would have been taken in any case, but at a less advanced level.

b. The master's program requires substantially more than thirty credits. This condition will be deemed to be satisfied if the combined program, with double-counting, still requires 150 or more credit hours to complete.

Degree Requirements

The requirements for graduation vary according to the character of work in the different colleges, schools, departments and academic units. It is the responsibility of the colleges, schools, departments and other academic units to establish and publish clearly defined degree requirements. Responsibility for knowing and meeting all degree requirements for graduation in any curriculum rests with the student. Specific degree requirements are listed in this catalog under the college and/or department as appropriate.

Each student should check with the proper academic authorities no later than the close of the junior year to ascertain his or her standing with respect to advancement toward a degree. For this purpose, each student should be sure to review their semester grades and unofficial transcript on the Testudo website (www.testudo.umd.edu) at the close of each semester or request a semester grade report.

1. Residency Requirement

a. All candidates for undergraduate degrees from the University of Maryland, College Park, must take a minimum of 15 credits in courses numbered 300 or above, including at least 12 credits in the major field.

b. All candidates for undergraduate degrees from the University of Maryland, College Park must take a minimum of 30 credits in residence. Normally these 30 credits will be the final 30 credits counted toward the degree. However, credits from University-approved study abroad and internship programs, and a maximum of 6 credits that are not part of such programs, may be included in

the final 30 if approved in advance by the dean of the academic unit from which the student expects to receive the degree.

2. Enrollment in Majors

A student who is eligible to remain at the University of Maryland, College Park, may transfer among curricula, colleges, or other academic units except where limitations on enrollments have been approved. By the time they complete 60 credits, students are expected to declare a degree-granting major. Students must be enrolled in the major program from which they plan to graduate, when registering for the final fifteen hours of the baccalaureate program. This requirement also applies to the third year of the combined, pre-professional degree programs. Also see information on double majors and double degrees elsewhere in this chapter.

3. Credit Requirements

No baccalaureate degree will be awarded in instances where fewer than 120 credit hours have been earned. Many undergraduate curricula at the University of Maryland, College Park, require more than 120 credits. It is the responsibility of each student to familiarize himself or herself with the requirements of particular curricula. The student is urged to seek advice on these matters from the departments, colleges, or the Office of the Dean for Undergraduate Studies. To earn a baccalaureate from the University of Maryland, College Park, a minimum of 30 credits must be taken in residence (see above).

4. Grade Point Average

A minimum cumulative 2.0 grade point average is required for graduation in all curricula. A higher average may be required by the individual department, college, school, or program.

Students who matriculated to the University in Fall 2012 and after must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements, minor requirements, and undergraduate certificate requirements, respectively. Individual department, college, school, or program requirements may exceed this minimum.

5. Completion of Interrupted Degree

Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

(Policy can be found here: http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-700a)

Minors

Minors afford students the opportunity to pursue a limited but structured concentration in a coherent field of study outside their major. The minor may be a truncated version of a major or a distinctive intellectual subset of a discipline. Minors are not offered in every field of study. Students should inquire with departments for current availability of minors or see individual listings on this site.

The structures of minors vary in detail, but, with rare exceptions, they all require no fewer than 15 and no more than 24 credits with at least 9 credits in upper division courses (300-level or above). No more than six credits (or two courses) may be applied to satisfy both the requirements of a minor and a major program. No course may be used to satisfy the requirements of more than one minor. All courses taken for a minor must be completed with a minimum grade of "C-". A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required.

To ensure appropriate academic advising, students who wish to pursue a minor should inform both the college responsible for their major and the unit offering the minor as early as possible, but in no case later than one full academic year before the expected date of graduation. When a student has completed all requirements for the minor, the unit offering the minor shall notify the student's college, which verifies that the student has met all requirements and officially notifies the Registrar's Office. The completion of a minor is posted on the student's official transcript only when the student completes all requirements for the bachelor's degree.

In February 2004, the University Senate voted to phase out academic citations and replace them with minors. Students pursuing an academic citation should contact the respective department or program for information on this conversion process.

Second Majors and Second Degrees

Second majors

A student who wishes to complete a second major concurrently with his or her primary major of record must obtain written permission in advance from the appropriate departments or programs and colleges. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as those of the college and general education programs. A student who wishes to add a Limited Enrollment Program as a second major must do so at the earliest possible opportunity to assure that specific credit and GPA requirements can be met. In order to obtain approval, students must complete all of the requirements specified for both the primary and secondary major. Courses taken for one major may be counted as appropriate as part of the degree requirements for the general education

programs. If two colleges are involved in the double major program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double major program must be obtained from each of the appropriate departments and college(s).

Second Degrees Taken Simultaneously

A student who wishes to receive two bachelor's degrees simultaneously must satisfactorily complete the regularly prescribed requirements of both degree programs and a minimum of 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved, as well as with the appropriate deans, formal programs showing the courses to be offered to meet the major, supporting area, college, and general education programs. If two colleges are involved in the double degree program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double degree program must be obtained from each of the appropriate departments and college(s).

Second Degrees Taken Sequentially

A student who has completed the requirements for, and has received one baccalaureate and who wishes to earn a second degree from the university must satisfactorily complete all of the prescribed requirements for the second degree and enough additional credits so that the total, including all applicable credits earned at the university or elsewhere, is at least 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. In no case will a second baccalaureate be awarded to a student who has not completed a minimum of 30 credits in residence at the university.

Post-Baccalaureate Second Degree

Students who matriculate to the University with a bachelor's degree from any regionally accredited college or university will be considered to have satisfied the University's general education requirements, regardless of when the degree was received.

Student Academic Success-Degree Completion Policy

The goal of the Student Academic Success-Degree Completion Policy (http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-800a) is to promote undergraduate student success. The policy establishes a structured framework to guide all students to completion of an undergraduate degree within a reasonable period of time. Academic units provide 4-year templates that students can use to develop a program of study that will meet the course requirements for a degree. Students are responsible for developing plans of study, with the assistance of their academic advisers. Academic units monitor student progress

and assist students at risk of falling behind benchmarks in their plans. The policy in essence establishes a process to provide a pathway to completion of a degree for each student, initially created and then adjusted over time as needed to meet each student's particular circumstances. The policy is described in more detail in the section on Academic Advising. (References to the policy: www.ugst.umd.edu/academicsuccess.html and to frequently asked questions: www.ugst.umd.edu/faqs-successpolicy.html).

Prior Learning Credit - AP, IB, A-Level/AS-Level, CLEP, BMT, Credit-by-Exam

The University of Maryland provides students with several opportunities to receive undergraduate credit for knowledge and achievements gained through prior learning/competency-based education. Students may earn up to one-half of the credits required for their baccalaureate degree through Prior Learning Credit (PLC). Usually, this is no more than 60 credits. No more than 30 of these credits can be from College Level Examination Program (CLEP).

The University recognizes the following as PLC: Advanced Placement (AP), International Baccalaureate (IB), Advanced Level/Advanced Subsidiary Level (A-Level/AS-Level), College-Level Examination Program (CLEP), Basic Military Training (BMT) and Departmental Proficiency Exams (Credit-by-Exam). All PLC that is awarded credit by the University of Maryland, with the exception of Credit-by-Exam, is recorded as prior learning credit at the top of the student's transcript and will be included in the total number of credits earned. Credits earned through Credit-by-Exam are considered resident credit and posted under the semester in which the exam was taken. *Students will not receive credit for both passing an examination and completing an equivalent course.*

Students should inform their advisor they have received or anticipate receiving credit for AP, IB, or A-Level/AS-Level exams. This information may impact placement into courses required for their degree.

Credit for AP, IB, A-Level/AS-Level and CLEP is awarded based on the approval of the department overseeing the course content and is subject to ongoing departmental reevaluation. Even if a student has already been awarded credit for one of these exams at another institution, the credit will be reevaluated by the University of Maryland. The score received on the exam must be equal to the minimum score the University of Maryland accepted at the time the test was taken, otherwise, the exam will not be awarded PLC. The University of Maryland must receive an official score report directly from the organization/board that administered the exam for PLC to be awarded.

Duplicate credit will not be awarded for passing an exam and completing an equivalent course. ***Credit received in a course at the University of Maryland shall supersede any credit from AP, IB, A-Level/AS-Level, or CLEP.*** A student who has earned any grade, passing or otherwise, in a course at the University of Maryland shall not subsequently receive credit for that course by AP, IB, A-Level/AS-Level, or CLEP. If a student has been awarded exam credit for an equivalent University of Maryland course in which they have also earned credit, the course from the exam

will be marked on their record as being a repeated course and the credits will be removed from the total number of credits earned. *No credit will be awarded for AP, IB, or A-Level/AS-Level exams that are repeated or taken after a student has matriculated to the University of Maryland.*

Information about the Prior Learning Credit, including the acceptance and awarding of credit, along with course equivalency charts, can be found online at http://www.transfercredit.umd.edu/plc.html. The University of Maryland Policy and Procedures Concerning Credit for Prior Learning can be found at http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-141a. The University System of Maryland Policy on Credit for Competency-Based Education and Prior Learning can be found at https://www.usmd.edu/regents/bylaws/SectionIII/. Questions regarding PLC should be directed to Transfer Credit Services (http://www.transfercredit.umd.edu).

Advanced Placement (AP)

The University of Maryland encourages applicants to seek AP credit so that academically successful students may move forward in their programs at an appropriate pace. However, credit is not awarded for all exams offered by College Board. Credits for AP exams are awarded based on departmental approval when the designated minimum score is earned. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit, minimum required score and course equivalencies. The year in which the student took the AP exam will determine how the University of Maryland awards credit. For example, if a student takes an AP exam in year 2016, the credit awarded is based on the evaluation of the exam during the 2016 year. Students need to have their scores sent directly to the University of Maryland from College Board; the University's code is 5814.

International Baccalaureate (IB)

The year in which the student took the IB exam will determine how the University of Maryland awards credit. For example, if a student takes an IB exam in year 2016, the credit awarded is based on the evaluation of the exam during the 2016 year. Credit is not awarded for all exams offered by IB and is based on departmental approval. All departments reserve the right to reevaluate the content of exams, and to change the assignment of credit, minimum required score and course equivalencies. Students should have their scores sent directly to the University of Maryland from the International Baccalaureate Results Service. The University's code is 001417.

Advanced Level/Advanced Subsidiary Level (A-Level/AS-Level)

The University of Maryland awards credit for A-Level/AS-Level exams taken through Cambridge International Exams (CIE) or one of the other approved boards. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit, minimum required score and course equivalencies.The year in which the student took the A-Level/AS-Level exam will determine how the University of Maryland awards credit. For example, if a student takes an A-Level/AS-Level exam in year 2016, the credit awarded is based on the evaluation of the exam during the 2016 year. Students are not permitted to earn credit for

both A-Level and AS-Level exams within the same subject areas. Official scores must be sent by CIE or the approved exam board to the University of Maryland. For additional information about A-Level/AS-Level, visit http://www.transfercredit.umd.edu/plc.html.

College-Level Examination Program (CLEP)

CLEP recognizes college-level competence achieved outside the college classroom. Two types of CLEP tests are available:

- General Examinations - cover the content of a broad field of study
- Subject Examinations - cover the specific content of a college course

Credit is not awarded for all CLEP General and Subject Examinations. CLEP credits are awarded when satisfactory scores are attained. All departments reserve the right to reevaluate the content of exams, and to change the assignment of credit, minimum required score and course equivalencies. The year in which the student took the CLEP exam will determine how the University of Maryland awards credit. For example, if a student takes a CLEP exam in year 2016, the credit awarded is based on the evaluation of the exam during the 2016 year. Current University of Maryland students must obtain permission from their advising college prior to taking a CLEP exam. This ensures the CLEP credits are acceptable and will apply toward the student's degree requirements. CLEP exams are administered at approved CLEP testing centers throughout the country. The University of Maryland is an approved CLEP Test Center (Test Center Code: 5814). Students who want to earn credit through CLEP must request their official score reports to be sent to the University of Maryland. The Score Recipient Code is 5814.

Basic Military Training (BMT)

Students who are currently on active duty or former service members in the United States Armed Forces are eligible to be awarded six credits of lower-level general elective credits. The credits are awarded for the completion of basic physical fitness and basic military science as part of basic military training for the United States Armed Forces.

To qualify, students must have been enrolled as an undergraduate student in the Fall 2013 semester or beyond, along with one of the following:

- Currently serving as an active duty member in the United States Armed Forces.
- Currently serving as a member of a reserve or National Guard branch of the United States Armed Forces.
- Has been Honorably Discharged from service in the United States Armed Forces.
- Has been Honorably Discharged from a reserve or National Guard branch of the United States Armed Forces.

Departmental Proficiency Examination (Credit-by-Exam)

At the University of Maryland, Credit-by-Exam is comparable to a comprehensive final examination in a course. Although the mathematics department receives the most applications

for Credit-by-Exam, many departments will provide opportunities for certain courses. Initial inquiry as to whether an examination in a specific course is available should be directed to the academic department which offers the course in question.

Credit-by-Exam may not be taken for courses in which the student has remained registered at the University of Maryland, beyond the Schedule Adjustment Period even with a transcript notation of W.

In order to be considered for Credit-by-Exam, a student must meet the following eligibility criteria:

a) A minimum of 12 (twelve) credit hours completed at the University of Maryland;

b) A minimum grade point average of 2.0;

c) Completion of all prerequisite courses or the approval of the department chairperson (or, in non-departmentalized units, the dean) and the Senior Vice President and Provost.

Note: Requirements a. and b. may be waived for students in their first semester at the University of Maryland by the department chairperson and the dean.

The following applies to the grading associated with Credit-by-Exam:

a) A student may cancel application for credit-by-exam at any time prior to the completion of the examination with no entry on the permanent record.

b) The examination instructor shall make the grade available to the student prior to the formal submission of the grade.

c) A grade of “C-” or better must be obtained to establish credit-by-exam.

d) If a student elects not to have the grade posted, a grade of “W” shall be recorded. No course may be attempted more than once using credit-by-exam.

e) Grades earned using credit-by-exam shall be posted on the transcript as resident credit in the semester the examination was taken and used in computing semester and cumulative grade point averages. Such grades shall be accompanied by the notation “By examination” as applicable.

Credit-by-exam will not be accepted for any part of the final 30 (thirty) semester hours without permission of the Senior Vice President and Provost. With such permission, 6 (six) of the final 30 (thirty) credit hours may be by credit-by-exam. Applications for examinations shall be approved on an individual course basis. The instructor must certify on the report of examination that copies of the examination questions and the student's answers shall be retained in accordance with the University of Maryland’s Records and Retention and Disposal Schedule.

If an examination for a course is available, the department will provide information regarding when and where the exam is administered, type of examination, and material which might be helpful in preparing for the examination. After making arrangements with the department, students must apply through the Division of Letters and Sciences, 1117 Hornbake Library, 301-405-2793. See http://ltsc.umd.edu/forms-ltsc.html for additional information regarding Credit-by-Exam.

Other Non-Traditional Experience

There are some instances of prior learning/competency-based education for which the University of Maryland generally does not award credit. These include, but are not limited to: American Council on Education (ACE), Defense Activity for Non-Traditional Education Support (DANTES), Program on Non-Collegiate Sponsored Instruction (PONSI), StraighterLine, departmental credit-by-exam from institutions other than Maryland public institutions of higher education, and life experiences.

Students may contact the Office of the Registrar to appeal the acceptance of prior learning experiences. For prior learning credit to be awarded during an appeal, the student must provide evidence that the prior learning experience falls within the level, scope, content and expected learning outcomes of courses offered at the University of Maryland. The determination of the Office of the Registrar shall be final.

Registration

Change of Address

Students are expected to notify the Office of the Registrar of any change in their local, permanent or e-mail address. Change of address can be completed online at (http://registrar.umd.edu/current/index.html#online-transactions) or forms are available at the following places:

Office of the Bursar, Room 1115 or 1135, Lee Building
Office of the Registrar, First Floor, Clarence M. Mitchell Jr. Building

Please be advised that changing your permanent address could affect your residency status for tuition and billing purposes. For further information about these potential implications, please contact Residency Reclassification Services at resclass@umd.edu.

Classification of Students

Official classifications of undergraduate students are based on cumulative credits as follows: freshman, 0-29 credit hours; sophomore, 30-59 credit hours; junior, 60-89 credit hours; and senior, 90 or more credit hours.

(Policy can be found here: http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-640a)

Concurrent Undergraduate-Graduate Registration

An undergraduate degree seeking student at the University of Maryland may, with the approval of his or her Dean, the department and the instructor offering the course, and of the Graduate School, register for graduate courses (600 level and above) that will be recorded as *for graduate credit only* and that may be applied towards an advanced degree at this university or elsewhere. Students eligible for this option normally will have achieved junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of "B-" or better. The student must submit a plan of study that shows that taking graduate courses will not unduly delay completion of requirements for the bachelor's degree. The total of graduate and undergraduate credits attempted in any semester may not be more than eighteen. The graduate credits so earned will not count towards any of the requirements for the Baccalaureate degree. A maximum of twelve credits may be taken for graduate credit by a student while enrolled as an undergraduate.

Courses Taken at Other Institutions

Eligible students may enroll in courses at other universities via the University System of Maryland's Inter-Institutional Registration Program or the Consortium of Universities of the Washington Metropolitan Area. Courses taken at another institution may not be credited toward a degree program without prior approval of the dean of the college from which the student expects to earn a degree.

Consortium of Universities of the Washington Metropolitan Area:

The Consortium of Universities of the Washington Metropolitan Area consists of American University, The Catholic University of America, Gallaudet University, The George Washington University, George Mason University, Georgetown University, Howard University, Marymount University, National Defense University, National Intelligence University,
Trinity Washington University, Uniformed Services University of the Health Sciences, University of the District of Columbia and the University of Maryland College Park. Students enrolled in degree-seeking programs at these institutions are able to attend certain classes at the other campuses and have the credit considered as resident credit at their home institutions. The intention is to allow students to take an occasional course to augment a program rather than to develop an individual program. Payment of tuition for courses will be made to the student's home campus however, special fees may be assessed by the host institution. Comparable courses offered at University of Maryland may not be taken through the Consortium.

Currently registered, degree seeking University of Maryland students with at least junior standing may participate in the Consortium program according to the stipulations listed in the current edition of the Registration Guide. Enrollment in courses is available only on a space-available basis. Visiting students are expected to meet prerequisites or other criteria set by the host institution and comply with the host institution's registration procedures and deadlines.

Golden ID students are not eligible to enroll in courses through the Consortium with waiver of fees. Faculty and staff tuition remission programs (e.g. assistantships, fellowships, etc.) will not

cover the cost of courses registered through the consortium program. University of Maryland students may only enroll in courses offered on the campus of the host institution. Students interested in additional information about the Consortium program should review the Office of the Registrar website at: http://registrar.umd.edu/current/registration/consortium.html or contact the Consortium Coordinator on the first floor of the Clarence M. Mitchell Jr. Building.

University System of Maryland Inter-Institutional Registration Program:

Currently registered, degree seeking University of Maryland College Park students have the opportunity to take courses at certain University System of Maryland Institutions to augment their degree program at University of Maryland under the Inter-Institutional Registration Program. The provisions for such are contained in the Board of Regents Policy on Student Concurrent Inter-Institutional Registration (BOR III 2.40;III 2.41) found at www.usmd.edu/regents/. Participating institutions include Bowie State University, Coppin State University, Frostburg State University, Salisbury University, Towson University, University of Baltimore, University of Maryland at Baltimore, University of Maryland, Baltimore County, University of Maryland College Park and University of Maryland Eastern Shore. University of Maryland College Park students may not enroll in courses at the University of Maryland University College through this program. Currently registered, degree seeking University of Maryland students with at least sophomore standing may enroll in courses for credit, and have that credit considered as resident credit at their home institution. Enrollment in courses is available only on a space available basis and visiting students are expected to meet prerequisites or other criteria set by the host institution. Payment of tuition for courses will be made to the student's home campus however special fees may be assessed by the host institution. Students interested in additional information about the Inter-Institutional Registration program should review the office of the Registrar website at: http://registrar.umd.edu/current/registration/inter-institutional.html or contact the Inter-institutional Coordinator on the first floor of the Clarence M. Mitchell Jr. Building.

Inter-Institutional Registration is only applicable for the Fall and Spring semesters.

Credit Hours and Maximum Semester Credits

No baccalaureate curriculum requires fewer than 120 semester hours. The semester hour, which is the unit of credit, is the equivalent of a subject pursued one period a week for one semester. Two or three hours of laboratory or field work are equivalent to one lecture or recitation period.

In order for undergraduate students to complete most curricula in four academic years, their semester load must range from 12 to 19 hours (30 to 36 hours each year) toward the degree. By policy, undergraduates may not exceed the following maximum credit loads without the prior approval of their Dean:

15 week semester: 20 credits (16 credits prior to the first day of classes)

6 week session: 8 credits

3 week session: 4 credits

Use of Email for Official Communication

The University has adopted email as the primary means for sending official communications to students. Academic advisors, faculty, and campus administrative offices use email to convey important information and time-sensitive notices. All enrolled students are provided a University email address. Students are responsible for keeping their email address up to date or for forwarding email to another address. Changes of email address can be completed online at http://registrar.umd.edu/current/index.html#online-transactions. Failure to check email, errors in forwarding email, and returned email due to *mailbox full* or *user unknown* will not excuse a student from missing announcements or deadlines.

Identification Cards

The photo ID card is issued at the time the student first registers for classes. This card is to be used for the entire duration of enrollment. Additionally, students who have food service contracts will use this photo identification card to access these services. Contact Dining Services directly for further information.

The photo ID card can be used by students for admission to most athletic, social, and cultural events, to withdraw books from the libraries, and as a general form of identification on campus.

There is a $20 charge for a replacement ID card in cases where the card is lost, stolen, has intentional damage (e.g. holes punched in the card, snapped in two, etc.), or the cardholder wishes to retake their photo. The replacement fee is waived in cases where the replacement is due to normal wear and tear (i.e. the bar code is no longer visible or the magnetic strip is non-functioning). A replacement ID card can be obtained from the Office of the Registrar, First Floor, Clarence M. Mitchell Jr. Building, Monday - Friday, 8am - 5pm.

It is the responsibility of the cardholder to keep their ID card safe and secure and to deactivate a lost or stolen ID card. You should immediately deactivate your ID card (https://id-card.umd.edu/lost/user) to prevent use by unauthorized individuals. The University assumes no responsibility for misuse of your card, or for charges to your accounts due to your ID card being lost or stolen.

Once deactivated, you must obtain a new ID card at the Office of the Registrar, First Floor, Clarence Mitchell Building, Monday - Friday, 8am - 5pm. The charge for a new ID card is $20. A deactivated ID card cannot be reactivated.

For more information, visit http://www.registrar.umd.edu/current/Policies/id-cards.html.

Registering for Classes

Office of the Registrar
Clarence M. Mitchell Jr. Building, 301-314-8240
www.registrar.umd.edu

To attend classes at the University of Maryland, it is necessary to process an official registration. Specific registration dates and instructions are available on www.registrar.umd.edu.

Newly admitted students are required to attend an orientation session (see Chapter 3 for Orientation information). Advising and course registration are part of the orientation process. All newly admitted students must meet with an advisor prior to registration. Likewise, newly admitted freshmen and transfer students are required to provide proof of immunization for measles, rubella, mumps and tetanus/diphtheria. Additionally, Maryland law requires residence hall students to either provide proof of vaccination against meningococcal disease or seek an exemption from this requirement. For more information, see: http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100h.

Registration Process: Currently enrolled undergraduate students are invited to early registration by appointment. Students can register at, or any time after, their assigned registration appointment date and time. Registration appointments for the Fall semester begin in late March, and appointments for the Spring semester begin in late October. Registration can be processed on Testudo (http://www.testudo.umd.edu/) or in person. Open registration follows early registration, and continues up to the first day of classes. During this time, students may process an original registration or make schedule adjustments. The schedule adjustment period begins on the first day of classes. All registration transactions, either on-line or in person, are final unless a student processes a cancellation of registration.

Registration information for Summer Term, Winter Term, Freshmen Connection, and Professional Programs may be found at www.oes.umd.edu.

Cancellation of Registration

Students who register and later decide not to attend the University must cancel their registration in writing with the Office of the Registrar prior to the official first day of classes. Failure to cancel registration will result in a financial obligation to the University of Maryland even if a student does not attend class. The University reserves the right to cancel registration for students who fail to meet their financial obligations.

Schedule Adjustment and Drop Period

Schedule Adjustment Period: Courses may be added, when space is available, during the schedule adjustment period, and will appear on the student's permanent record. Courses dropped during this period will not appear on the student's permanent record. The schedule adjustment period is the first 10 days of classes for the fall and spring semesters.

For the standard 6-week Summer Sessions I and II, the schedule adjustment period is typically the first 5 days of classes; for the Winter Session and the standard 3-week Summer sessions, the schedule adjustment period is the first day of classes. Complete information on schedule adjustment and drop period for Summer Session, Winter Session, Freshmen Connection, and Professional Programs may be found at www.oes.umd.edu.

Information on non-standard courses can be found at: http://www.registrar.umd.edu/current/registration/non-standard.htm

During the schedule adjustment period full-time undergraduates may drop or add courses, or change sections or credit level without financial penalty provided they remain full-time students (registered for 12 or more credits). See Penalties for Drops During Schedule Adjustment (http://registrar.umd.edu/current/registration/ScheduleAdjustment.html) for information and penalties associated with changing from full-time to part-time.

Part-time undergraduates (fewer than 12 credits) may also add, drop and change sections, as well as change credit level, but should consult the Penalties for Drops During Schedule Adjustment section (http://registrar.umd.edu/current/registration/ScheduleAdjustment.html) to avoid incurring additional charges.

Grading Method (including pass-fail) may be changed only during the schedule adjustment period.

After Schedule Adjustment

Courses may not be added without special permission of the department and the dean of the academic unit in which the student is enrolled.

All courses for which the student is enrolled shall remain as a part of the student's permanent record. The student's status shall be considered full-time if the number of credit hours enrolled at this time is 12 or more.

Drop Period

The drop period for undergraduate students will begin at the close of the schedule adjustment period and terminate at the end of the tenth week of classes for the fall and spring semesters. Consult the academic calendar at http://registrar.umd.edu/deadlines.html for dates.

Drops during this period will be recorded on the student's permanent record with a notation of W and will not be used in the computation of a student's cumulative grade point average. During this period a student may drop a maximum of four credits. However, if the course carries more than four credits, the student may drop the entire course, or in the case of a variable credit course, reduce the credit level by up to four credits.

Student ID Numbers

University of Maryland assigns all students a unique nine-digit university identification number (UID). The UID is the student identifier for most university transactions. Use of the social security number is limited to necessary business transactions or where it is required by law.

See http://www.president.umd.edu/sites/president.umd.edu/files/documents/policies/VI-2600a.pdf for the University of Maryland Policy on the Collection, Use and Protection of ID Numbers and a list of currently approved uses.

Undergraduate Credit for Graduate Level Courses

Subject to requirements determined by the graduate faculty of the department or program offering the course, undergraduate degree-seeking students may register for graduate-level courses, i.e., those numbered from 600 to 898, with the exception of 799, for undergraduate credit. The student must obtain the prior approval of the department and instructor offering the course.

Students eligible for this option normally will have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of "B-" or better.

Enrollment in a graduate-level course does not in any way imply subsequent departmental or graduate school approval for admission into a graduate program, nor may the course be used as credit for a graduate degree at the University of Maryland.

Veterans Benefits

Students attending the university under the Veterans Education Assistance Act (Title 38, U.S. Code) may receive assistance and enrollment certification at the Office of the Registrar, 1113 Clarence M. Mitchell Jr. Building. Consult www.registrar.umd.edu/veteran-benefits.html for more information.

Withdrawal and Leave of Absence

Students admitted to the University of Maryland are expected to make regular and consistent progress towards the completion of their degree. However, the University understands that in exceptional circumstances a student may find it necessary to completely withdraw from all classes. The University considers such an interruption to be very serious as it delays normal progress towards the degree. Students should not withdraw for frivolous reasons or to avoid the consequences of ignoring their academic responsibilities. Any student considering withdrawal is strongly encouraged to meet with his or her academic college advisor before leaving the University.

Potential Implications: Withdrawing or taking a leave of absence from the University may have serious implications for international students, students receiving financial aid or students

residing in on-campus housing. Students are advised to contact the appropriate offices before finalizing withdrawal or leave of absence plans.

Student Financial Services Office, 1135 Lee Building, 301-314-9000
Department of Resident Life, 2100 Annapolis Hall, 301-314-2100
Office of International Services, 2111 Holzapfel Hall, 301-314-7740

Withdrawal: A withdrawal is available anytime between the first and last day of classes. Students must submit written notice of withdrawal to the Office of the Registrar no later than the last day of classes. In exceptional cases, a retroactive withdrawal may be granted based on documented requests in which extenuating circumstances significantly impaired the student's ability to complete the semester and officially withdraw by the established semester deadlines. Such circumstances include, but are not limited to, medical or psychological causes. A student's return to the University is contingent upon the conditions outlined in *Return to the University* below.

Leave of Absence: A leave of absence is a type of withdrawal and is available for students wishing to take time away from the University with the intention of returning the following semester. The leave of absence status is especially helpful for recipients of federal financial aid because they are not considered to be withdrawn provided they do return and complete the following semester. Students may apply for a leave of absence only during the last 60 days of the semester. A student's return to the University is contingent upon the conditions outlined in *Return to the University* below.

Return to the University: Normally, a student may withdraw or take a leave of absence from the University only once during matriculation as an undergraduate. Students who find it necessary to leave the University are required to petition the Faculty Review Board in order to return. Students who have earned a minimum 2.0 cumulative GPA, with no previous withdrawal or leave of absence, are exempt from this requirement. Students who withdraw or take a leave of absence while on academic probation, or those returning from dismissal, are always required to petition the Faculty Review Board. For information on returning to the university, please see www.studentsuccess.umd.edu.

Additional Withdrawal/Leave of Absence Information: The effective date of withdrawal or leave of absence for the purposes of refunds is the date that the notice is received by the Office of the Registrar. Notation of withdrawal/leave of absence and the effective date will be posted to the student's academic record. Instructors and college offices will be notified of all withdrawn students. The deadline date for submitting the withdrawal for each semester is the last day of classes. Students should contact the Student Success Office for reenrollment information.

The repeat policy will not apply to courses taken during the academic semester from which the student is officially withdrawn.

Military Call-ups: It is the intent of the University of Maryland, College Park, to facilitate the withdrawal or change in registration and the reenrollment of students who are called to active military duty during the semester. The student (or a representative) should take a copy of the

military orders to the Office of the Registrar and process a withdrawal or change in registration papers. Detailed information about this process may be obtained from the Office of the Registrar. Withdrawal for active military service will have no effect on any subsequent request to withdraw from the University.

Transfer Credit

Acceptability of Undergraduate Transfer Credits

Generally, college-level courses completed at regionally-accredited institutions will be acceptable and awarded transfer credit, provided the course is similar in **level, scope, content and expected learning outcomes** to courses offered at the University of Maryland and a grade of "C-" or higher is earned. Regional accrediting bodies include: Middle States Association of Colleges and Schools; New England Association of Schools and Colleges; North Central Association of Colleges and Schools; Northwest Association of Schools and Colleges; Southern Association of Colleges and Schools; and Western Association of Schools and Colleges. The University of Maryland typically does not award undergraduate transfer credit for courses that are pre-collegiate, remedial, vocational, technical, graduate, professional (e.g. law, medicine, dentistry, nursing), or religious in nature. For a transfer course to receive credit, the course must be similar in level, scope, content and expected learning outcomes of courses offered at the University of Maryland. Other types of transfer courses that usually are not awarded transfer credits are independent study, internships, externship, practicum, or co-op work experiences that are not supervised by University of Maryland faculty. In addition, transfer credit is not awarded for these types of experiences completed through other institutions.

The Office of the Registrar at the University of Maryland posts all undergraduate transfer courses to an undergraduate degree seeking student's academic record from regionally-accredited institutions of higher education in the United States and international institutions recognized by the country's Ministry of Education. Only transfer courses that are acceptable and awarded credit by the University of Maryland will be noted on the student's official transcript. The notation will include the course title and number of credits awarded; the grade for a course is not included. Grades from transfer courses are not included in the University of Maryland grade point average calculation.

Transfer courses from non-regionally accredited institutions in the United States will be reviewed for acceptability on an individual basis at the request of the student. Only transfer courses that have been determined to be acceptable for transfer to the University of Maryland will be posted to the students' academic record. For a course to be deemed acceptable for transfer, the course must be similar in level, scope, content and expected learning outcomes to courses offered at the University of Maryland. Transfer courses from international institutions that are not recognized by the country's Ministry of Education are not accepted for transfer and will not be awarded credit by the University of Maryland.

Transfer courses completed at public institutions of higher education in the State of Maryland, in accordance to COMAR (Code of Maryland Regulations) policy 13B.06.01.05 (http://www.dsd.state.md.us/comar/subtitle_chapters/13B_Chapters.aspx), are acceptable for

transfer with a grade of "D-" (as of Fall 2012) or higher. The transfer course must be similar in level, scope, content and expected learning outcomes to courses offered at the University of Maryland. In addition, the University of Maryland has direct articulation transfer programs (http://www.artsys.usmd.edu/) with all Maryland public community colleges. An articulated transfer program is a list of courses that best prepares applicants for a particular program of study at the University of Maryland. *It is important to note that as per University of Maryland academic policies, the minimum grade required to satisfy a degree requirement may be higher than the minimum grade to be awarded transfer credit.*

Transfer of General Education Requirements from Maryland Public Institutions

As directed by the MHEC Policy (*13B.06.01.04)*, transferable courses taken in fulfillment of general education requirements at a Maryland public institution will be applied toward University of Maryland's general education requirements. Careful planning with an academic advisor will ensure that students take appropriate credit and maximize their credit transfer. The total number of general education credits for a Maryland public institution transfer or post baccalaureate credits will not exceed that required of native students.

- A student transferring from a Maryland public community college with an earned associate's degree has completed general education at the University of Maryland, except for any upper-level requirements and the number of credits required to complete general education (40 credits for GenEd or 43 credits for CORE). An official transcript from the transfer institution must be received by the University of Maryland with a notation the associate's degree was awarded.
- A student who has completed the general education program at a Maryland public community college has completed general education at the University of Maryland, except for any upper-level requirements and the number of credits required to complete general education (40 credits for GenEd or 43 credits for CORE). The transfer institution must provide documentation on or with the student's official transcript stating the student has complete the general education program.
- A student who earned a baccalaureate degree from the University of Maryland and is pursuing a second degree has completed all general education for the University of Maryland.
- A student who has earned a baccalaureate degree at a Maryland public four-year institution has completed all general education at the University of Maryland. An official transcript from the transfer institution must be received by the University of Maryland with a notation the baccalaureate degree was awarded.
- A student who has completed the general education program at a Maryland public four-year institution has completed all general education at the University of Maryland. The transfer institution must provide documentation on or with the student's official transcript stating the student has complete the general education program.

Transfer of General Education Requirements from Non-Maryland Public Institutions

Students transferring from non-Maryland public institutions are required to complete all general education requirements at the University of Maryland with the following exceptions:

- A student who has earned a baccalaureate degree from a regionally accredited institution in the United States has completed all general education at the University of Maryland. An official transcript from the transfer institution must be received by the University of Maryland with a notation the baccalaureate degree was awarded.
- A student who has earned a baccalaureate degree from an international institution that is recognized by that country's ministry of education and the degree has been determined to be equivalent to a baccalaureate degree in the United States has completed all general education at the University of Maryland. An official transcript from the transfer institution must be received by the University of Maryland with a notation the baccalaureate degree was awarded.

Transfer Credit Services

Transfer Credit Services (TCS) is a division of the Office of the Registrar at the University of Maryland. TCS oversees course subject matter to determine the acceptability and awarding of transfer credit for the University; and consults with the academic departments for course clarifications and guidance. This review is based on a comparison of the transfer course to courses offered for undergraduate degree programs at the University of Maryland.

A course that is accepted for transfer to the University of Maryland will receive one of the following types of evaluations:

- direct equivalency to a University of Maryland course (whether within or outside of the major),
- no direct equivalency, but satisfies general education requirement, or
- no direct equivalency, but is accepted as a general elective.

TCS provides information and assistance to academic advisors as they work with undergraduate student transfer issues. Students and advisors work together to decide how courses satisfy a student's degree program, while TCS provides information to the campus advising community on transfer credit and prior learning credit policies, course evaluations, credit reports and articulation through an online course equivalency database at http://www.transfercredit.umd.edu/tclookup.html.

For additional information about Transfer Credit Services, visit http://www.transfercredit.umd.edu.

Transfer Course Preliminary Evaluation

Admitted students can obtain access to their preliminary transfer credit evaluation of domestic transfer courses starting approximately two weeks after the receipt of their admission letter. The preliminary evaluation can be reviewed via their University of Maryland unofficial transcript (http://www.testudo.umd.edu). An official review of transfer courses completed at institutions in the United States will occur automatically upon admission to the University. For courses that have not previously been evaluated or state NS (Needs Syllabus) or PE (Pending Evaluation) on the student's unofficial transcript, the student needs to request the course be evaluated by

following the steps for the Transfer Credit Evaluation Process (http://www.transfercredit.umd.edu/tceval.html). The student will need to provide a detailed syllabus to request a transfer course evaluation. Occasionally, additional information about a course may be required by the departmental evaluator to complete the evaluation. The evaluation of transfer credit is an ongoing process that may continue through the student's first semester at the University of Maryland or as updated transcripts for the student are received.

Students are responsible for submitting all official final transcripts detailing their entire academic record prior to matriculation to the University of Maryland. Credit will post to a student's University of Maryland record only from official transcripts received from the institution at which the credits were earned.

An academic advisor in the student's advising college will review and determine the applicability of the already evaluated courses during orientation. It is important for admitted students to continually monitor their unofficial transcript for updates and to consult with their advisor when updates occur. ***Note: a transfer course CANNOT be applied toward satisfying a degree requirement until the course has been deemed acceptable for transfer by the University of Maryland.***

Transfer Course Level

At the University of Maryland, lower-level courses refer to freshman and sophomore level courses (100 or 200) and upper-level courses refer to junior and senior level courses (300 or 400). *It is important to note that NOT all institutions use the same course numbering system as the University of Maryland to identify lower-level and upper-level courses. Additional research may be needed to make an appropriate determination of course level.*

Generally, courses are transferred to the University of Maryland at the equivalent level in which the course was taken at the transfer institution.

- a lower-level course transfers to UMD as a lower-level course
- an upper-level course transfers to UMD as an upper-level course
- lower-level course can equate to an upper-level course at UMD, but the course is still considered lower-level
- an upper-level course can equate to a lower-level course at UMD, but the course is still considered upper-level
- ALL courses from a community college are considered lower-level

Students should work with their major and/or advising college to determine how these courses may apply toward satisfying degree requirements at the University of Maryland.

Transfer Credit Conversion to Semester System

The University of Maryland operates on a semester calendar system. Transfer courses taken at institutions on quarter, unit or other types of calendar systems will be converted to semester

credit hours. For transfer courses taken on a quarter calendar system, the University awards .67 semester credits per quarter credit hour of study. For transfer courses taken on a unit or other type of credit system, the University bases the number of semester credit hours on the number of units required to earn a degree from the institution. It is important to note the University of Maryland does not round transfer credits up or down to the nearest whole number.

Applicability of Transfer Courses to Degree Requirements

Once a course has been approved as acceptable for transfer to the University of Maryland, the advising college in which the student is enrolled determines which transfer courses are applicable to the student's degree program. In cases when a student is majoring within more than one advising college, the primary advising college is responsible for determining applicability of transfer courses in collaboration with the secondary advising college. It is important to note a transfer course must first be evaluated as being acceptable for transfer to the University of Maryland before the course can be applied toward satisfying any degree requirements. For additional information about the Transfer Credit Evaluation Process, visit http://www.transfercredit.umd.edu/tceval.html.

It is imperative that the advising college makes note of the required semester hours for the degree the student is pursuing. In addition, students should be warned that changing their major could impact the number of transfer credits that may be applied to their degree requirements. If a student changes the degree they are pursuing, the advising college will need to reevaluate the applicability of the transfer credits and adjust accordingly to ensure the most appropriate transfer courses are being applied toward the degree requirements.

The University of Maryland requires a ***minimum of 120 semester hours*** have been earned to award a baccalaureate degree. In general, the maximum number of transfer credits applicable toward degree requirements at the University of Maryland is as follows:

- No more than ***60 transfer credits*** may be applied toward degree requirements from a ***2-year institution***.
- No more than ***90 transfer credits*** may be applied toward degree requirements from:

    a) a ***4-year institution or any combination of 4-year institutions***.

    b) a combination of ***2-year institutions, 4-year institutions and prior learning credits***.

Regardless of the total number of semester hours required for a degree program, all candidates for undergraduate degrees from the University of Maryland must complete a minimum of 30 credits in residence at the University.

Fundamental Studies Academic Writing Minimum Grade Requirement of C- or higher Starting Fall 2017

In accordance with Code of Maryland Regulations (COMAR 13B.06.01.03), students who enroll in Fundamental Studies Academic Writing (FSAW) must earn a grade of C- or higher. Students who have completed FSAW with a grade of D- or higher prior to Fall 2017 at a Maryland public institution will have met the Academic Writing General Education requirement.

Prior Learning Credit

For information about Prior Learning Credit, please see Chapter 4 – Prior Learning Credit – AP, IB, A-Level/AS-Level, CLEP, BMT, Credit-by-Exam.

Permission to Enroll at Another Institution

Obtaining Permission to Enroll at Another Institution (Transfer Credit)

Undergraduate students already enrolled at the University of Maryland must obtain permission prior to taking courses at another institution using the following forms:

- *Permission to Enroll at Another Institution* (PTE) form must be submitted to, and approved by, the advising college prior to enrolling at another U.S. institution. This form is available online at http://www.registrar.umd.edu/petitions-forms/PermissionToEnroll.html or in the student's advising college office.
- *Permission to Study Abroad* (PSA) form must be submitted to, and approved by, the advising college prior to enrolling at an International Institution. This form is available through the Education Abroad office (http://globalmaryland.umd.edu/offices/education-abroad).

All transfer courses taken away from the University of Maryland must be evaluated for acceptability to the University prior to the PTE or PSA form being submitted for approval. See http://www.transfercredit.umd.edu/tceval.html for instructions on how to request a transfer course be evaluated for acceptability.

This permission is required for courses taken away from the University of Maryland in all semesters, summer and winter terms. Failure to obtain permission prior to enrolling in course(s) away from the University of Maryland may result in the course not being accepted for transfer by the University and/or applied to the student's degree requirements.

Upon completion of the course(s), the student must request an official sealed transcript be sent from the institution they attended to the University of Maryland.

The student and advisor will work together to decide how the transfer course(s) are applicable to the student's degree program. The title of the course, term in which the course was taken and the number of transfer credits awarded will be noted on the student's official transcript; but the grade earned will not be displayed. Grades from transferred courses are not included in the University of Maryland grade point average calculation.

Questions regarding Courses Taken at Another Institution (Transfer Credit) should be directed to the student's advising college: http://www.transfercredit.umd.edu/advcollege.html.

Courses Taken at Other University of Maryland Institutions

For students who began their attendance at the University of Maryland in Fall 1989 or later, all course work taken at any University System of Maryland institution will be posted as transfer credit. For all students who attended the University of Maryland prior to Fall 1989, courses taken at another University System of Maryland institution (UMBC, UMAB, UMES, UMUC) prior to Fall 1989 will be included in the cumulative GPA. Courses taken at any other institution may not be credited toward a degree without advance approval.

For information about Consortium or Inter-Institutional Programs, please see Chapter 4 – Registration, Courses at Other Institutions.

Chapter 5. General Education Requirements

General Education Program and Requirements

General Education Program and Requirements
Office of the Associate Provost and Dean for Undergraduate Studies
2100 Marie Mount Hall, 301-405-9363
Contact: Douglas Roberts, Associate Dean for General Education
www.gened.umd.edu
gened@umd.edu

New freshmen for fall 2012 and after will follow the General Education@UMD Program: www.gened.umd.edu. Students enrolled at the university prior to fall 2012 will be under the CORE Program: www.ugst.umd.edu/core. Transfer and other students should check the* General Education Program: Effective Dates *information below.

General Education Program: Effective Dates

Students matriculating* to the University of Maryland (including freshmen and students transferring from private institutions and from non-Maryland public institutions) beginning in fall 2012 will be subject to the University's General Education Program requirements www.gened.umd.edu, except as provided below:

1. The University of Maryland, College Park requires students to complete a minimum of 40 credits of general education. Students transferring to the University who have completed their general education requirements at another Maryland public institution of higher education will be considered to have completed their general education requirements with the exception of an upper-level writing course and any additional credits necessary to complete the minimum number of general education credits.

2. Students transferring to the University from another Maryland public institution of higher education who have not completed their general education requirements at another Maryland public institution of higher education will be treated as follows:

a. Students who matriculate to college beginning in fall 2012 and thereafter will be subject to the new General Education Program requirements upon transfer to the University of Maryland.

b. Students who matriculate to college prior to fall 2012 but transfer to the University of Maryland prior to fall 2016 will be subject to the CORE general education requirements (www.ugst.umd.edu/core).

c. Students who transfer to the University of Maryland beginning in fall 2016 and thereafter will be subject to the General Education Program requirements, regardless of the date of their matriculation at another Maryland public institution of higher education following award of the high school diploma.

3. Students returning or transferring to College Park after a separation from college of five or more continuous years must follow the requirements in effect at the time of reentry. Students who matriculate to the University with a bachelor's degree from any regionally accredited college or university will be considered to have satisfied the University's general education requirements, regardless of when the degree was received.

*For purposes of this transfer policy, matriculation means to be admitted to college and enrolled in classes following award of the high school diploma.

General Education at the University of Maryland

Through the General Education program you will discover that education at the University of Maryland is an experience that reaches from the campus classroom and lab to across the globe. As a student you will engage with that larger universe by acquiring new skills and understandings. General Education exposes you to different disciplines, improves your fundamental academic skills, and strengthens your commitment to using knowledge and abilities to better yourself and others.

The General Education program will assist you in preparing for a new "multiverse" of learning, and for the demanding and constantly changing world beyond graduation. It provides necessary skills and basic knowledge, complements and expands the university's course offerings, and connects you more fully to the intellectual community of the Washington-Baltimore metropolitan area, the nation, and the world beyond.

General Education program goals for all students:

- Develop the skills necessary to succeed in academic careers and in professional lives by establishing habits and understanding of clear writing, effective speaking and presentation, and critical and analytic reasoning.
- Strengthen knowledge in major areas of study.
- Broaden knowledge of civilizations past and present.
- Establish the ability to thrive both intellectually and materially and to support themselves, their families, and their communities through a broad understanding of the world in which they live and work.
- Define the ethical imperatives necessary to create a just society in their own communities and in the larger world.

IMPORTANT NOTES: General Education courses:

- MUST be selected from the courses coded as meeting General Education requirements. See list of approved General Education courses at Testudo: https://ntst.umd.edu/soc/. Click on the General Education list for the term you wish to explore.
- MAY also be used to satisfy college, major, and/or supporting area requirements
- MAY NOT be taken on a Pass-Fail basis.

Elements of the GENERAL EDUCATION@UMD PROGRAM

Fundamental Studies

Master the skills. (5 courses, 15 credits)

- Mathematics
- Analytic Reasoning
- Academic Writing
- Professional Writing
- Oral Communication

Mathematics: The goal of the Mathematics requirement is to convey the power of mathematics, demonstrated by the variety of problems that can be modeled and solved by quantitative means. Ability in mathematics is a critical measure of how well students are prepared to meet the challenges they will face in their lives beyond school. ***Must be attempted by 30 credits and successfully completed by 60 credits.****

Analytic Reasoning: Courses in Analytic Reasoning foster a student's ability to use mathematical or formal methods or structured protocols and patterns of reasoning to examine problems or issues by evaluating evidence, examining proofs, analyzing relationships between variables, developing arguments, and drawing conclusions appropriately.

If a student passes an Analytical Reasoning course that requires Fundamental Studies Math as a prerequisite, the Math requirement has also been fulfilled.

Academic Writing: The Fundamental Studies Academic Writing requirement prepares students with a foundational understanding of the writing skills needed for success in further studies at Maryland and beyond. All students must earn a C- or better. ***Must be attempted by 30 credits and successfully completed by 60 credits.****

Professional Writing: The Fundamental Studies Professional Writing requirement strengthens writing skills and prepares students for the range of writing expected of them after graduation.

Oral Communication: Human relationships, from the most formal to the most personal, rest in large measure on skilled listening and effective speaking. Skillful listening and speaking support success in personal relationships, educational undertakings, professional advancement, and civic engagement.

**** No exemption is allowed for SAT scores. Scores on AP and IB exams may provide exemption. Refer to the 2012-13 Undergraduate Catalog for exemption information.***

Distributive Studies

Experience a variety of disciplines. (8 courses, 25 credits)

- **Natural Sciences**
- **History and Social Sciences**
- **Humanities**
- **Scholarship in Practice**

The Program has three additional categories that may be taken on their own or, through double-counting, may be rolled up into the Distributive Studies categories. Two of these comprise the Diversity requirement: Understanding Plural Societies and Cultural Competence. The third is the I-Series program which offers students two courses that deal with major issues. With double-counting, students will have a minimum of 40 credits in General Education.

Natural Sciences courses introduce the concepts and methods of studying the natural world. Courses include the traditional physical and life sciences, environmental science, animal and avian science, and plant science, among others. ***One of the two courses selected must include a substantial, rigorous laboratory experience.***

History and Social Science courses introduce students to history and to the social science disciplines, with their combination of qualitative and quantitative methods. They include courses in criminology, economics, history, psychology, sociology, and other social sciences.

Humanities courses study the history and the genres of human creativity. They include courses in literatures in any language, art and art history, classics, and music and music history, as well as in the disciplines of linguistics and philosophy, among others.

Scholarship in Practice courses engage students in applying a body of knowledge to create professional products or works of art. Architecture, business, education, engineering, and journalism offer courses that lead to products such as architectural designs, new technologies, innovative publications, new computer software, business plans, advertising campaigns, educational curricula, and bioengineering. Creative and artistic performance courses lead students to produce writing portfolios, plays, operas, dance productions, art exhibits, and creative media. Scholarship in Practice also includes courses that combine competency in speaking, writing, and translation in a foreign language. ***One of the two Scholarship in Practice courses selected must be outside the student's major requirements.***

To fulfill the Distributive Studies requirement:

- Students must complete two courses in each of the four Distributive Studies areas for a total of eight courses in Distributive Studies. One of the courses in the Natural Sciences must include a laboratory experience.
- Two of the eight courses must be I-Series courses. I-Series courses double-count with Distributive Studies. AP credit may not be used to satisfy the I-Series requirement.
- AP credit for Distributive Studies is limited to six of the eight courses.
- One of the two Scholarship in Practice courses must be outside the major requirements.
- Coursework within one's major is permitted to satisfy both the major and general education requirements.

- A Diversity requirement may be fulfilled by a course that is approved for both a Diversity category and for a Distributive Studies category.

Diversity

Explore human, social, and cultural differences. (2 courses, 4-6 credits that normally double-count with Distributive Studies)

- Understanding Plural Societies
- Cultural Competence

To fulfill the Diversity requirement:

- Students must complete two Understanding Plural Societies courses (6 credits total) OR
- One Understanding Plural Societies course (3 credits) and one Cultural Competence course (1-3 credits).

Courses fulfilling the Diversity requirement may double-count in an approved Distributive Studies category.

Students will not be able to fulfill Understanding Plural Societies and/or Cultural Competence by a study abroad experience unless the study abroad course carries that specific designation.

I-Series
Choose from a unique suite of courses that form the cornerstone of Distributive Studies. (2 courses, 6 credits that double-count with Distributive Studies)
The I-Series is the signature program of General Education at the University of Maryland. I-Series courses are lively and contemporary. They speak to important issues that spark the imagination, demand intellect, and inspire innovation. They challenge students to wrestle with big questions, and examine the ways that different disciplines address them. I-Series courses are not surveys of particular fields of knowledge. Instead, I-Series courses provide students with the basic concepts, approaches, and vocabulary of particular disciplines and fields of study as well as an understanding of how experts in those disciplines and fields employ terms, concepts, and approaches. Visit www.iseries.umd.edu for all the details and course offerings.

- To view the General Education Requirement Checklist, see: http://www.gened.umd.edu/documents/GenEdChecklist.pdf
- To view Frequently Asked Questions, see: http://www.gened.umd.edu/faqs-gened.php
- To obtain a General Education@UMD Academic Planner and Record Keeper, visit your college advising office, or the Office of Undergraduate Studies (2110 Marie Mount Hall).

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CORE Program Requirements
Office of the Associate Provost and Dean for Undergraduate Studies
2100 Marie Mount Hall, 301-405-9363
Contact: Douglas Roberts, Associate Dean for General Education
www.ugst.umd.edu/core

IMPORTANT: See "General Education Program: Effective Dates" above to determine whether you are under the CORE Program Requirements or the General Education Program Requirements.

- To view Learning Outcome Goals for the CORE Program see: www.ugst.umd.edu/core/LearningOutcome.htm
- To view the CORE Program Requirements Outline: www.ugst.umd.edu/core/core_req.html
- To obtain a CORE Academic Planner and Record Keeper, visit your college advising office, or the Office of Undergraduate Studies, 2110 Marie Mount Hall.

CORE Program Elements

1. **Fundamental Studies** build competence and confidence in basic writing and mathematics. Mastery of these basics enhances success both during and after college. Students begin fulfilling Fundamental Studies requirements in their first year at the University. www.ugst.umd.edu/core/elements/FundaSt.html

2. **Distributive Studies** focus on breadth, including courses in the following categories: Literature; The History or Theory of the Arts; Humanities; Physical Sciences; Life Sciences; Mathematics and Formal Reasoning; Social or Political History; Behavioral and Social Sciences; and Interdisciplinary and Emerging Issues. Students generally pursue Distributive Studies in the first two years of their course work. www.ugst.umd.edu/core/elements/DistrSt.html

3. **Advanced Studies** allow students to enhance their degree and strengthen their critical thinking and writing skills by taking two upper-level courses outside their major after 60 credits. Students may substitute an approved CORE Capstone course in their major or a senior or honors thesis for one of these two courses. www.ugst.umd.edu/core/elements/AdvanSt.html

4. **Human Cultural Diversity** gives students the opportunity to examine their ideas and values in the light of various cultural, intellectual, and social contexts. Diversity courses increase knowledge of what constitutes difference and increase students' ability to learn from and appreciate people, cultures, ideas, and art forms that are often different from those they know best. Students may complete the Cultural Diversity requirement at any time before graduation. www.ugst.umd.edu/core/elements/Diversity.html

IMPORTANT NOTES: Fundamental and Distributive Studies courses:

- MUST be selected from the approved CORE course lists to count toward CORE requirements. At www.ugst.umd.edu/core, click on "What are the CORE Courses?" for links to the current lists of approved courses in each CORE category.

- MAY also be used to satisfy college, major, and/or supporting area requirements if the courses also appear on CORE Fundamental or Distributive Studies lists.

- CORE courses MAY NOT be taken on a Pass-Fail basis.

I. CORE Fundamental Studies
Three Courses (9 credits) Required

1. One course in Academic Writing (Must be attempted within the first 30 credits; must be passed within the first 60 credits.) See: http://www.english.umd.edu/academics/academicwriting

- Approved CORE Academic Writing Courses:
  ENGL101 Academic Writing
  ENGL101A Academic Writing (Must be taken if student has TSWE [SAT verbal subtest] score below 33)
  ENGL101H Academic Writing (Honors Students)
  ENGL101X Academic Writing (Students for whom English is a second language may register for ENGL101X instead of ENGL101.)
- Note: Based on scores from either the TOEFL or MEIP, students may be required to complete a program of English language instruction for non-native speakers through the MEI before being allowed to register for ENGL101X.

Exemptions from Academic Writing requirement (**CORE Program Only**):

- AP English Language and Composition test score of 4 or 5, OR
- SAT verbal score 670 or above for scores achieved between May 1995 and February 2005. (In April 1995, the Educational Testing Service re-centered the scores on the SAT. Students whose test scores are from before April 1995 must have received a score of 600 or above to be exempt from Academic Writing. This re-centering does not reflect a raising of the requirement for exemption, but a change in the scoring system used by ETS.
- In March 2005, ETS began the use of a new SAT test for writing. Information about exemption in connection with SAT tests taken after March 2005 will be available at www.english.umd.edu/fw-program-general/fwp-exemptions/.
- Beginning in fall 2012, students under the new General Education program will not be exempted from the Academic Writing requirement based on SAT scores.

2. One course in Mathematics (Must be attempted within the first 30 credits; must be passed within the first 60 credits.) See www.ugst.umd.edu/core/courses/Fundamental/FundaSt-math.html

Approved CORE Fundamental Studies Mathematics Courses:
MATH110 Elementary Mathematical Models; OR
MATH112 College Algebra with Applications and Trigonometry; OR
MATH113 College Algebra with Applications; OR
MATH115 Pre-calculus; OR
Any 100- or 200-level MATH or STAT course except MATH199, 210, 211, 212,213, 214, and 274.

Exemptions from Mathematics requirement (CORE Program Only):

- SAT Math score of 600 or above; OR
- AP score of 4 or above in Calculus AB or BC; OR
- AP score of 4 or above in Statistics; OR
- CLEP Calculus Exam score of 50 or higher.
- Beginning in fall 2012, students under the new General Education program will not be exempted from the Mathematics requirement based on SAT scores.

Note: If you are placed in the Developmental Math Program by the Mathematics Placement Exam, you may be offered the opportunity to combine your Developmental course with the appropriate subsequent course of MATH110, 111, 113, or 115 and thus finish both in one semester. For further information, please see the Developmental Math Program web site: www.math.umd.edu/undergraduate/courses/fsm.html

3. One course in Professional Writing (taken after 60 credits). www.ugst.umd.edu/core/courses/Fundamental/Funda-St-professional.html

Approved CORE Professional Writing Courses:

ENGL390 Science Writing
ENGL391 Advanced Composition
ENGL392 Legal Writing
ENGL393 Technical Writing
ENGL394 Business Writing
ENGL395 Writing for Health Professions
ENGL398 Topics in Professional Writing

Suffixed versions of the above course numbers also fulfill the CORE Professional Writing requirement.

Exemption from Professional Writing Requirement (CORE Program Only):

- Grade of "A" in ENGL101 (NOT ENGL101A or ENGL101X), except for students majoring in Engineering. All Engineering majors must take ENGL393.
- Beginning in fall 2012, students under the new General Education program will not be exempted from the Professional Writing requirement based on a grade of "A" in ENGL101.

Note: No exemption from the Professional Writing requirement will be granted for achievement on SAT verbal exam. Professional Writing courses cannot be used to fulfill Advanced Studies requirements.

II. CORE Distributive Studies
Nine Courses (28 credits) Required
See the listings of approved CORE courses in the online Schedule of Classes at https://ntst.umd.edu/soc/

1. Humanities and the Arts-three courses required

- One course from Literature (HL), **and**
- One course from The History or Theory of the Arts (HA), **and**
- One more course from Literature (HL), OR The History or Theory of the Arts (HA), OR Humanities (HO).

Note: There is no specific CORE requirement for a Humanities (HO) course.

2. The Sciences and Mathematics - three courses required:

- Up to two courses from Physical Sciences (PL/PS)
- Up to two courses from Life Sciences (LL/LS)
- Up to one course from Mathematics and Formal Reasoning (MS)

Notes: At least one science course MUST include or be accompanied by a lab taken in the same semester (LL or PL only). More than one lab course may be taken. Courses must be taken from at least two of the three categories. There is no specific CORE requirement for a Mathematics and Formal Reasoning (MS) course. At least two life and/or physical science courses must be taken (PL, PS, LL, and LS). The third Sciences and Mathematics course may be another science selection or may be chosen from Mathematics and Formal Reasoning (MS) courses.

3. Social Sciences and History-three courses required:

- One course from Social or Political History (SH) **and**
- Two courses from Behavioral and Social Sciences (SB)

4. Interdisciplinary and Emerging Issues (CORE CODE: IE)

OPTIONAL CORE DISTRIBUTIVE STUDIES CATEGORY EFFECTIVE BEGINNING FALL 2005

Details at: http://www.ugst.umd.edu/core/elements/DistrSt.html#IE

- IE is an optional CORE distributive studies category; Students may fulfill CORE requirements without taking an IE course.

- Only one IE course may be counted toward fulfilling CORE Distributive Studies requirements.
- Whether a student takes an IE course or not, total CORE Distributive Studies course and credit requirements remain the same: at least 9 courses and 28 credits.

III. CORE Advanced Studies
Two Courses (6 credits) Required
Students may choose their two Advanced Studies courses from a wide range of upper-level offerings outside their majors. Good choices include courses that mesh with or expand educational goals or other interests, increase knowledge, and strengthen critical thinking and writing skills.
CORE Advanced Studies Requirement: Two upper-level (300- or 400-level) courses outside the major taken after 60 credits. Students may substitute a CORE approved senior capstone course in their major or a senior or honors thesis for one of the two required Advanced Studies courses. Enrollment in CORE Capstone courses will be subject to departmental guidelines. The other course must be outside the major. Students completing double majors or double degrees will have fulfilled the campus Advanced Studies requirement, unless their primary major or college has additional requirements. The student's academic college determines whether or not a course is "outside the major" for the purpose of fulfilling CORE Advanced Studies.
The following may NOT be used to fulfill Advanced Studies requirements:

- Professional Writing courses (courses that meet the Fundamental Studies upper-level writing requirement);
- courses used to meet Distributive Studies requirements;
- internships, practica, or other experiential learning types of courses;
- courses taken on a pass/fail basis.

One independent studies course (minimum of three credits, outside the major) may be used toward Advanced Studies requirements as long as it is consistent with the rules above and the faculty member supervising the independent study agrees that it is appropriate for Advanced Studies.
Notes: CORE Capstone courses must be taken within the major. A senior thesis (minimum of 3 credits) or successful completion and defense of an honors thesis in either the Honors College or a Departmental Honors Program (minimum of 3 credits) counts as CORE Capstone credit.
See list of approved CORE Capstone courses at https://ntst.umd.edu/soc/

IV. CORE Human Cultural Diversity
One Course (3 credits) Required
See the CORE Diversity List in the online Schedule of Classes at https://ntst.umd.edu/soc/

Cultural Diversity courses focus primarily on: (a) the history, status, treatment, or accomplishment of women or minority groups and subcultures; (b) non-Western culture, or (c) concepts and implications of diversity.
Note: A number of CORE Human Cultural Diversity courses also satisfy CORE Distributive Studies, Advanced Studies, or a college, major, and/or supporting area requirement.

Study Abroad and Satisfying CORE Requirements see:
http://www.ugst.umd.edu/core/moreinfo/StudyAbroad.html

Chapter 6. The Colleges and Schools

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES (AGNR)

0108 Symons Hall, 301-405-2078
agnr.umd.edu
hrobert1@umd.edu
Dean: Craig Beyrouty
Associate Dean(s): Adel Shirmohammadi and Joseph Sullivan
Assistant Dean(s): Evelyn E. Cooper and Daniel Kugler

The College of Agriculture and Natural Resources offers a variety of academic programs that apply science, management, design, and engineering to improve the world in which we live and work. Feeding the world's population, developing scientifically-based land use practices and policies, understanding animal and plant biology, improving nutrition and its effects on human health, conserving and restoring ecosystems, and profitably managing farms and agribusinesses in harmony with the environment are all vital concerns of the College. Integrating the use and protection of natural resources in the production of food and nursery crops is a challenge facing students.

In addition to course work, undergraduates have opportunities to work closely with faculty in state-of-the-art facilities including those for animal sciences, dietetics, environmental science and technology, landscape architecture, plant sciences, and veterinary medicine. The College also serves as the academic home of the Maryland Campus of the Virginia-Maryland Regional College of Veterinary Medicine. Nearby resources such as the U.S. Department of Agriculture's Beltsville Agricultural National Research Center, the National Institutes of Health, the Food and Drug Administration, the Smithsonian Institution and the National Zoo, Maryland's Departments of Agriculture and Natural Resources, and the Patuxent Wildlife Research Center enhance teaching, research, internship, and career opportunities for students. Field study courses offered in Azerbaijan, Brazil, Belize, Costa Rica, Italy, Peru, Russia, and Taiwan, and a study-abroad program in Angers, France expose students to other cultures and environments. Learning opportunities are also strengthened through student involvement in such co-curricular activities as the College Honors Program, AGNR Undergraduate Research Program, career programs, leadership workshops, and student clubs.

Special Advantages and Facilities

Educational opportunities in the College of Agriculture and Natural Resources are enhanced by the proximity of several research units of the federal government. Teaching and research activities in the College are conducted with the cooperation of scientists and professional people in government positions. Of particular interest are the National Agricultural Research Center at Beltsville, the National Agricultural Library, the National Arboretum, and the Food and Drug Administration.

Instruction in the basic biological and social sciences, and landscape design is conducted in modern, technologically-equipped classrooms and laboratories. The application of basic

principles to practical situations is demonstrated for the student in numerous ways. In addition to on-campus facilities, the college operates several education and research facilities throughout Maryland. Horticultural and agronomic crops, turf, beef, horses, dairy cattle, and poultry are maintained under practical and research conditions and may be used by our students. These centers, as well as other selected locations on and off campus also serve as living laboratories for environmental studies.

Admission Requirements

It is recommended that students entering the College of Agriculture and Natural Resources have completed a high school preparatory course that includes: English, 4 units; mathematics, 3 units; biological and physical sciences, 3 units; and history or social sciences, 2 units.

Undergraduate Degree Requirements/Degree Options

Departments in the College of Agriculture and Natural Resources offer the following programs of study:

Agricultural and Resource Economics: Business Management; Agricultural Science; Environmental and Resource Policy; Food Production; International Agriculture; and Political Process

Animal Sciences: Animal Care and Management; Equine Studies; Laboratory Animal Care; Science/Pre-professional; and Animal Biotechnology

Combined Agriculture/Veterinary Medicine

Environmental Science and Policy: Environment & Agriculture, Environmental Economics, Environmental Restoration, Soil, Water, & Land Resources, and Wildlife Resources & Conservation

Environmental Science and Technology: Concentrations in Ecological Technology Design, Environmental Health, Soil and Watershed Science, or Natural Resources Management

Plant Sciences: Horticulture and Crop Production, Landscape Management, Plant Sciences, Turf and Golf Course Management, and Urban Forestry

Agricultural Sciences and Technology

Landscape Architecture

Nutrition and Food Science: Dietetics; Food Science; and Nutritional Science

Students graduating from the college must complete at least 120 credits with a grade point average of 2.0 in all courses applicable toward the degree. Requirements of the major and

supporting areas are listed under individual program headings in the Departments, Majors and Programs section of this site.

Advising

Each student in the College is assigned a faculty advisor to assist in selecting courses, accessing academic enrichment opportunities, and making strategic career decisions. Advisors normally work with a limited number of students and are able to give individual guidance. Both freshmen entering with a definite choice of curriculum and transfer students are assigned to departmental advisors for counsel and planning of all academic programs as soon as possible. Students have access to additional advising through their home department's undergraduate program office and through the college's student services office. AGNR Peer Mentors, academically talented and university-engaged upperclassmen, provide an additional advising resource for students in the college.

Specifics of advisor assignment are available in the undergraduate office of each department.

Departments and Centers

Undergraduate credit instruction is offered by the Departments of Animal and Avian Sciences (ANSC), Agricultural and Resource Economics (AREC), Environmental Science and Technology (ENST), Nutrition and Food Science (NFSC), and Plant Science and Landscape Architecture (PSLA). Additionally, the Environmental Science and Policy (ENSP) major is based and administered within the College of Agriculture and Natural Resources; it offers specializations advised within this college as well the colleges of Behavioral and Social Sciences, Chemical, Mathematical and Natural Sciences. Also, the Agricultural Science and Technology major within PSLA offers students the opportunity to double major in Agriculture Education. Additional courses are provided through the 2-year certificate program in the Institute of Applied Agriculture.

Minors

Academic Minors provide students an opportunity to expand or complement their major by taking additional courses (15-24 credits) in a coherent field of study. Students interested in a minor should contact the undergraduate program office of the department offering the minor. Currently the following are approved minors (with the offering department in parentheses) in the college:

Agribusiness Economics (Agricultural and Resource Economics)

Environmental Economics and Policy (Agricultural and Resource Economics)

Resource and Agricultural Policy in Economic Development (Agricultural and Resource Economics)

Global Poverty (Agricultural and Resource Economics)

Landscape Management (Plant Science and Landscape Architecture)

Soil Science (Environmental Science and Technology)

Sustainability Studies (Environmental Science and Policy)

Living-Learning Programs

The college sponsors, through its Environmental Science and Policy Program, the Environment, Technology and Economy curriculum in College Park Scholars. Admission to College Park Scholars is selective and by invitation only. For further information, see Undergraduate Studies, College Park Scholars Program in the Colleges and Schools section of this site.

Specialized Academic Programs

The Institute of Applied Agriculture offers 60-credit certificate programs designed primarily for professional development. Options offered include Agribusiness Management, Equine Business Management, Golf Course Management, Golf Course Construction Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, Sustainable Agriculture and Turfgrass Management. Some two-year program students continue on in regular four-year programs in the college and several of the college's majors allow limited use of Institute courses in their programs.

Pre-Veterinary Medicine

The College of Agriculture and Natural Resources is the most popular choice for students who wish to pursue veterinary medicine. Two excellent majors not to be missed are housed in the Department of Animal and Avian Sciences. The Agricultural and Veterinary Medicine major offers a student an accelerated academic path with all recommended courses for veterinary school and the opportunity to apply at the end of the junior year. The Sciences/Pre-Professional major offers a student a four year academic path with all recommended courses for veterinary school and the opportunity to apply upon receipt of the bachelor of science (B.S.) degree.

College Honors Program

Students may apply for admission to the College Honors program after completing 60 credits with a minimum 3.2 GPA in a program within the College. Honors students work with a faculty mentor and must take at least 12 credits of honors courses including a senior thesis. Interested students should contact their faculty advisor.

Approved Student Societies and Professional Organizations

Student participation in professional societies, clubs, and interest groups is extensive in the college, and students find opportunity for varied expression and growth in the following organizations:

AGNR Peer Mentors; AGNR Student Ambassadors; AGNR Student Council; Alpha Zeta; Alpha Gamma Rho; Animal and Avian Sciences Graduate Student Association; Block and Bridle; Collegiate 4-H; Food and Nutrition Club; Landscape Architecture Student Association; Natural Resources Management Society; Sigma Alpha; UM Equestrian Club; UM Food Science Club; UM Student Chapter of Golf Course Superintendents Association of America; Minorities in Agriculture and Natural Resources and Related Sciences (MANRRS) and Veterinary Science Club.

Financial Assistance

A number of scholarships are available for students enrolled in the College of Agriculture and Natural Resources. These include:

AGNR Alumni Association Scholarship; AGNR General Scholarship; Arthur M. Ahalt Memorial Scholarship; Attorney General's Agricultural and Natural Resources Scholarship; Professor John Axley Memorial Scholarship; Eileen Barnett Scholarship; Beltsville Garden Club Scholarship; Bruce and Donna Berlage Scholarship; Chester F. Bletch Endowment; Bowie-Crofton Garden Club Scholarship; Frank D. Brown Memorial Scholarship; Joseph Byrd Foundation Scholarship; Jonas and Joan Cash Student Award Scholarship; Chapel Valley Landscape Honorary Scholarship; George Earle Cook, Jr. Scholarship; Ernest T. Cullen Memorial Scholarship; Jaime Dannemann Scholarship; R.F. Davis Memorial Scholarship; Jerry V. DeBarthe Memorial Scholarship; William R. DeLauder Scholarship; Frank J. Duda Turfgrass Scholarship; Mylo S. Downey Memorial Scholarship; Equine Studies Scholarship; Explore AGNR Scholarship; James R. Ferguson Memorial Scholarship; Kenneth S. Fowler Memorial Endowed Scholarship; Thomas A. Fretz Agriculture and Natural Resources Scholarship; James & Sarah Goddard Memorial Scholarship; William D. Godwin Endowed Scholarship; Golf Course Builders of America Association Foundation Scholarship; Manasses J. & Susanna Jarboe Grove Scholarship; Tom Hartsock Animal Management Scholarship; H. Palmer Hopkins Scholarship established by Charles W. Coale, Jr. & Ellen Kirby Coale; Charles & Judy Iager Scholarship; Land Grant Scholarship; James & Gertrude Leamer Scholarship; Donald Leishear International Travel Scholarship; Lee Majeskie Dairy Youth Scholarship; Maryland Greenhouse Growers Association Scholarship; James R. & Patricia M. Miller Outstanding Senior Scholarship; John and Marjorie Moore International Agriculture & Natural Resources Student Travel Scholarship; James and Dessie Moxley Scholarship; Paul R. Poffenberger Memorial Scholarship; Jennifer Russo Memorial Scholarship; Ross & Pauline Smith Scholarship; J. Herbert Snyder Educational Scholarship; Southern States Cooperative Scholarship; Hiram I. Stine Memorial Scholarship; T.B. Symons Memorial Scholarship; TIC Gums Scholarship; Vansville Farmers Club Scholarship; A.V. Vierheller Scholarship; Siegfried Weisberger, Jr. Memorial Scholarship; Theo & Georgianna Miles Weiss Memorial Scholarship; and the William R. Winslow Scholarship.

The College is privileged to offer additional support in the form of interest-free loans through the Catherine Brinkley Loan Fund which are available to students who are residents of Maryland and progressing in programs within the College of Agriculture and Natural Resources.

Awards

The Agriculture and Natural Resources Alumni Chapter provides recognition each year for the Outstanding Senior in the two-year and four-year programs.

Research Units

Maryland Agricultural Experiment Station

The Maryland Agricultural Experiment Station (MAES) supports research conducted primarily by 120 faculty scientists located within the College of Agriculture and Natural Resources. Faculty use state-of-the-art facilities such as a new Research Greenhouse Complex and Environmental Simulator, as well as 10 off-campus research locations, for research in the science, business, policy, and practice of agriculture. MAES supports research that benefits consumers and producers alike; for example, our significant focus on the environment protects valuable natural resources such as the Chesapeake Bay. Undergraduate students also benefit from mentoring by MAES-supported faculty and instructional use of MAES facilities statewide.

University of Maryland Extension

The University of Maryland Extension educates citizens in the application of practical, research-based knowledge to critical issues in agricultural and agribusiness including aquaculture; natural resources and the environment; human development, nutrition, diet, and health; youth development and 4-H; and family and community leadership. The statewide program includes more than 180 faculty and support staff located in 23 counties, the City of Baltimore, four regional centers, and the University of Maryland's College Park and Eastern Shore campuses. In addition, more than 15,000 volunteers and citizens in Maryland give generously of their time and energy.

Center for Food Safety and Security Systems (CFS^3)

The **Center for Food Safety and Security Systems** (CFS^3) provides world-class research, education and outreach on issues related to food and water defense, safety and protection. Housed in the Department of Nutrition and Food Science, this new center will provide additional opportunity for students to become involved in issues of significance for homeland security. For information on CFS^3, please see http://cfs3.umd.edu/ or call 301-405-0773.

Harry R. Hughes Center for Agro-Ecology, Inc.

The **Harry R. Hughes Center for Agro-Ecology, Inc**. is a private, non-profit 501 (c) 3 organization affiliated with the University of Maryland. The Center brings together diverse interests from the agricultural, forestry, and environmental communities for the purpose of retaining Maryland's working landscapes and the industries they support while protecting and improving the health of the Chesapeake Bay and its tributaries. For further information see http://agresearch.umd.edu/agroecol or call at 410-827-6202.

Joint Institute For Food Safety and Nutrition

The **Joint Institute For Food Safety and Nutrition** (JIFSAN), established between the US FDA and the University of Maryland in 1996, is a jointly administered research and education program. For information on JIFSAN, see www.jifsan.umd.edu/ or call 301-405-8382.

Northeastern Regional Aquaculture Center

The **Northeastern Regional Aquaculture Center** (NRAC) is one of five Regional Aquaculture Centers established by the U. S. Congress for the United States. Funded by the USDA, and representing 12 states and the District of Columbia, NRAC develops and sponsors cooperative regional research and extension projects in support of the aquaculture industry in the northeastern United States. For further information see https://agresearch.umd.edu/nrac or call 301-405-6085.

Student Engagement and Service Units

Virginia-Maryland Regional College of Veterinary Medicine, Maryland Campus

College of Agriculture and Natural Resources

Dr. Nathaniel Tablante, Associate Director, Center for Public and Corporate Veterinary Medicine
1202 Gudelsky Veterinary Center, 301-314-6820
Email: nlt@umd.edu
http://vetmed.umd.edu/

The Virginia-Maryland Regional College of Veterinary Medicine is operated by the University of Maryland and the Virginia Polytechnic Institute and State University. Each year, 30 Maryland and 50 Virginia residents comprise the entering class of a four-year program leading to a Doctor of Veterinary Medicine (DVM).

The first three years are given at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. The final year of instruction is given at several locations, including the University of Maryland, College Park.

A student desiring admission to the college must complete the pre-veterinary requirements and apply for admission to the professional curriculum. Admission to this program is competitive, and open to all Maryland residents. All Maryland residents' applications are processed at the College of Veterinary Medicine, Maryland Campus, University of Maryland, College Park.

Institute of Applied Agriculture (Two-Year Certificate Program)
College of Agriculture and Natural Resources
Glori Hyman, Director
2123 Jull Hall, 301-405-4685
E-mail: iaa@umd.edu
www.iaa.umd.edu

The Institute of Applied Agriculture (IAA) awards academic certificates in Agricultural Business Management, Golf Course Management, Golf Course Construction Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, Sustainable Agriculture and Turfgrass Management. As a two-year program, the IAA has a separate admission policy. Upon completion of the program, students are welcome to transfer to the University of Maryland, College Park; University of Maryland University College; and other schools.

For more information about the IAA, its admissions procedures, and requirements, contact the Institute of Applied Agriculture, 2123 Jull Hall, University of Maryland, College Park, MD 20742-2525.

SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION (ARCH)

1200 Architecture Building, 301-405-8000
www.arch.umd.edu
mappinfo@umd.edu
Dean: Sonia Hirt
Associate Dean(s): Donald Linebaugh, Gerrit Knaap
Assistant Dean(s): Ingrid Farrell, Laura Mikolajko

The undergraduate program in architecture develops critical thinkers, problem solvers and skilled professionals ready to take on the challenges of sustainable design. Our prime location between Washington, D.C., and Baltimore offers many advantages: a faculty of highly respected scholars and practitioners; alumni connections and careers at countless architectural firms; and rich architectural diversity. Begin your journey to a more sustainable and environmentally balanced world right here.

The first two years of the curriculum focus on developing a broad-based and well-rounded liberal education, complemented by courses that introduce you to architecture. You'll be exposed to the many resources and opportunities of the university while refining your academic and career interests. We offer you two degree options that are tailored to fit your particular academic and career interests. The **Bachelor of Science** curriculum is centered on design studios, with complementary coursework in architectural history, theory, technology and visual media. The studio courses offer unique experiences where you'll not only have the opportunity to show your design skills but also work with communities to help solve real-world problems.

One unique feature of the **Bachelor of Arts** program is your ability to pursue an academic path that reflect your passions and interests. It's not uncommon for students to discover that their interest in architecture reveals other career aspirations. Earning a bachelor of arts in architecture allows you to build a foundation in architecture while preparing for careers in business, urban planning, real estate development or historic preservation, just to name a few.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice and research. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation.

Special Advantages and Facilities

Accreditations

NAAB - In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The University of Maryland's School of Architecture, Planning and Preservation offers the following NAAB-accredited degree programs:

- M.Arch (pre-professional degree + 60 graduate credits)
- M.Arch (non-pre-professional degree + 109 credits)

Facilities

The school is housed in a modern building providing design workstations for each student, a 300 seat auditorium, and seminar and classroom facilities. The Great Space, an atrium at the center of the School, is the location for collaborative projects, design reviews, critiques, and a variety of events that that bring the architecture program together. Facilities include a well-equipped woodworking and model shop, computer labs, digital output and digital fabrication. The Architecture Library, one of the finest in the nation, offers convenient access to a current circulating collection of more than 34,000 volumes, 8,000 periodicals, and an extensive selection of reference materials. Rare books and special acquisitions include a collection relating to international expositions and the 11,000-volume National Trust for Historic Preservation Library.

Upper level summer programs include travel to Rome, Paris, Turkey, Great Britain, and other countries. Students may earn direct credit doing hands-on restoration work and by attending lectures by visiting architects, preservationists, and scholars. Undergraduate seniors and graduate students may also participate in a Studio Abroad in Florence: Live, study, and learn in the city where Architecture began. You'll take classes in Leon Battista Alberti's masterpiece, the Palazzo Ruccellai, and attend studio in a newly renovated building on the banks of the Arno. In addition to learning in the classroom, you will have plenty of opportunity to visit museums, draw in piazzas, learn to speak Italian, and absorb the history of Italy while learning local customs.

Admission Requirements

http://arch.umd.edu/arch/degree/bachelor-science-architecture for admissions questions.

Freshman Admission. Students from high school gain admission to the Undergraduate Architecture Program through the University's Office of Undergraduate Admissions. Admitted freshmen have access to the necessary advising through their initial semesters to determine if architecture is an appropriate major for their interests and abilities.

Before a student enrolls in either the BA or BS during their third year of study, they must complete the Degree Placement Review Process. This will determine which degree program best fits their interests and talents, as well as, the duration of their studies until graduation. Students should complete the following courses as prerequisites before beginning their junior year:

- ARCH170 or 171, 225, 226, 200, and 300 with a grade of "C-"
- MATH120, PHYS121 and one natural science course with a minimum grade of "C-" in all three

Transfer Admission Requirements. Transfer students who wish to study Architecture must first gain admission to the University and concurrently submit for the Degree Placement Review Process if they wish to be considered for junior standing. Please see above for the requirements. Transfer applicants are strongly encouraged to apply by the priority deadline and should contact the Undergraduate Architecture Advisors as soon as possible at archadvise@umd.edu.

Undergraduate Degree Requirements/Degree Options

All students must complete the following courses in Architecture:

- ARCH171 – Design Thinking
- ARCH225 – Architectural World History I
- ARCH200 – Design Media I
- ARCH226 – Architectural World History II
- ARCH300 – Design Media II
- ARCH201 – Elements & Principles
- ARCH462 – Methods & Materials I
- ARCH400 – Architectural Design Studio I
- ARCH463 – Sustainable Systems

For the Bachelor of Science degree option, students must complete three additional 6-credit design studios and accompanying technical/structures courses.

- ARCH401, ARCH402, ARCH403
- ARCH464, ARCH465, ARCH466
- ARCH474
- ARCH4XX – 12 credits

For the Bachelor of Arts degree option, students must complete 36 additional credits in upper level Architecture electives and a minimum of 9 additional credits in directed electives inside or outside the major.

- ARCH4XX – 36 credits

Advising

Entering students are advised by the Undergraduate Advisors located in the School's Main Office. Advising is mandatory for all undergraduate architecture majors each semester. Students must meet with an academic advisor to discuss their academic plan and course selection. Students can make an appointment for advising online by visiting www.arch.umd.edu. Students may also contact the advising office via archadvise@umd.edu. Walk-in appointments are also available. Students may use the archadvise@umd.edu email at any time. Students should always include their full name, UID and contact information in any email correspondence.

Minors

Construction Project Management:

A minor in Construction Project Management will prepare students for employment in one of the many careers related to the built environment, such as project management, architectural engineering, design and commercial construction. Students will learn how to manage multiple phases of operation and management in the construction process including building information modeling, cost estimating, project scheduling, construction financing and planning. The Construction Project Management minor is ideal for students in Architecture, Engineering and similar fields. This minor is designed to give students a competitive advantage when applying for a job in the construction industry.

Requirements for the Minor:

1. 12 credits of required courses:

- ENCE325 - Introduction to Construction Project Management
- ENCE423 - Project Planning, Estimating & Scheduling
- ENCE424 - Communication for Project Managers
- ARCH472 - Building Information Modeling (BIM) Communication & Collaboration

2. 3 credits of approved upper level electives

Real Estate Development:

Undergraduates with an interest in real estate can now complete a minor in real estate development. The minor will provide students with an overview of sustainable real estate development, including the development process; the basics of real estate finance; urban planning and design; and the unique roles of government and the private sector.

Requirements for the Minor:

1. 12 credits of required courses:

- RDEV250 - People, Planet and Profit: Building Sustainable Places
- RDEV270/Accounting - Tax & Accounting for Real Estate Development
- RDEV350 - Principles, Process and Practice of Real Estate Development
- RDEV450 - Foundations of Real Estate Finance and Investment

2. 3 credits of approved upper level electives

Approved Student Societies and Professional Organizations

The Architecture Student Assembly represents the student body. Assembly members are elected from undergraduate and graduate classes. Representatives attend Faculty Meetings, serve on committees, and organize the Architecture Program Retrospective at the end of each semester.

The School of Architecture, Planning, and Preservation sponsors a chapter of the American Institute of Architecture Students (AIAS), the national association for architecture students. The AIAS chapter sponsors a variety of activities including an annual Career Fair, Beaux Arts Ball, field trips, conferences, workshops, and other events throughout the academic year.

The University of Maryland chapter of NOMAS is affiliated with the national professional organization NOMA. NOMAS is a group of students from a variety of backgrounds pursuing architecture degrees at the undergraduate and graduate levels, interested in contributing to the UMD School of Architecture, Planning and Preservation by building a sense of community based on shared experiences unique to our diverse student body.

Women in Architecture – In a field that is predominantly male dominated, it is vital to fill the absence of a well established community to specifically empower women. Through weekly meetings and planned events, members can discuss and understand how to spread the empowerment of all women as well as build a network of a aspiring and established female architects and designers. If this is something you are interested in being apart of, please join our professional organization. Both men and women are encouraged to participate and become members of WIA.

Alpha Rho Chi (APX) is the national co-ed fraternity for architecture and the allied arts. Its brotherhood unites men and women for the purpose of fellowship and lifelong friendships, as well as professional development. This is exemplified by the fraternity's motto: Fidelitas, Amor et Artes or "Fidelity and Love of the Arts."

Financial Assistance

Many financial awards are offered to freshman upon admission. Any questions about financial aid for freshman admits should be directed to the Office of Undergraduate Admissions and the Office of Student Financial Aid.

Each year, the School of Architecture, Planning and Preservation offers a number of merit-based scholarships to qualifying undergraduate students. Many are offered to students participating in study abroad programs. Interested students are encouraged to apply for these in early Spring. Information is available at www.arch.umd.edu. Please note that most of these scholarships are reserved for students in the studio sequence of the program.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. Freshmen and sophomores are strongly encouraged to visit the OFSA early in their tenure at the University of Maryland to determine any scholarships they may be eligible for in the following years.

For more information, visit: www.financialaid.umd.edu.

Research Units

National Center for Smart Growth Research and Education
1112 Preinkert Fieldhouse, College Park,301-405-6788
www.smartgrowth.umd.edu
Dr. Gerrit Knaap

The National Center for Smart Growth Research and Education is a non-partisan center for research and leadership training on Smart Growth and related land use issues nationally and internationally. Founded in 2000, the National Center for Smart Growth is a cooperative venture of four University of Maryland schools: Architecture, Planning and Preservation; Public Policy; Agriculture and Natural Resources; and Engineering. The mission of the Center is to bring the diverse resources of the University of Maryland and a network of national experts to bear on issues of land development, resource preservation and urban growth -- the nature of our communities, our landscape and our quality of life -- through interdisciplinary research, outreach and education, thereby establishing the University as the national leader in this field.

COLLEGE OF ARTS AND HUMANITIES (ARHU)

1102 Francis Scott Key Hall, 301-405-2088
www.arhu.umd.edu
Dean: Bonnie Thornton Dill

The College of Arts and Humanities embraces a heterogeneous group of disciplines that study human experience, thought, expression and creativity. All value the development of critical thinking, fluent expression in writing and speech, sensitivity to ethical and aesthetic issues, and a complex understanding of history and culture. Departments and programs in Arts and Humanities prize vigorous intellectual debate in a diverse community. While they have strong individual identities, they are also involved in interdisciplinary studies. Thus students will find, for example, courses in the Department of English that approach literature in its historical contexts, courses in the Department of History that adopt feminist perspectives, courses in the Department of Art History and Archaeology that study African politics, and so on.

Further examples of the special opportunities available to students in this richly variegated college include an exceptional visual resource center in Art History and Archaeology, the English Department's computer-based writing classroom, and the School of Languages, Literatures, and Culture's Foreign Language Media Lab. Additionally, students may add an international experience to their undergraduate education by participating in an ARHU-sponsored study abroad program in Chile, China, Ecuador, France, Germany, Greece, Ireland, Israel, Italy, Japan, New Zealand, Spain, Taiwan, and the United Kingdom. The educational vistas open to students in the School of Music and the School of Theatre, Dance, and Performance Studies are enhanced enormously by the Clarice Smith Center for the Performing Arts, which houses those departments. Students may also participate in one of the College's five living-learning programs: Honors Humanities, College Park Scholars in the Arts, Design I Cultures + Creativity, Jimenez-Porter Writers' House, and Language House (see below).

Admission Requirements

Freshmen and transfer students interested in applying for admission should refer to the general university admissions information provided in the catalog. Admission to the college's School of Music is a two-step process: undergraduate applicants must apply to both the Office of Undergraduate Admissions and to the School of Music. Visit www.music.umd.edu for information. Further, students wishing to major in creative or performing arts are encouraged to seek training in the skills associated with such an area prior to matriculation. Applicants to these programs may be required to audition or submit a portfolio as a part of the admission requirements. For more information about the college's academic programs, please contact Mr. J. Darius Greene, Associate Director at arhu-admit@umd.edu or 301-405-2096.

Undergraduate Degree Requirements/Degree Options

The College of Arts and Humanities offers the degree of Bachelor of Arts in the following fields of study:

American Studies: www.amst.umd.edu
Arabic Studies: www.arabic.umd.edu
Art: www.art.umd.edu
Art History and Archeology: www.arthistory-archaeology.umd.edu
Central European, Russian, and Eurasian Studies: www.ceres.umd.edu
Chinese Language and Literature: www.chinese.umd.edu
Classics: www.classics.umd.edu
Classical Humanities *(see Classics)*
Communication: www.comm.umd.edu
Dance: www.tdps.umd.edu
English Language and Literature: www.english.umd.edu
Film Studies: www.film.umd.edu
French Language and Literature: www.french.umd.edu
Germanic Studies: www.german.umd.edu
Greek *(see Classics)*
History: www.history.umd.edu

Italian Language and Literature: www.italian.umd.edu
Japanese Language and Literature: www.japanese.umd.edu
Jewish Studies: www.jewishstudies.umd.edu
Latin *(see Classics)*
Latin and Greek *(see Classics)*
Linguistics: www.ling.umd.edu
Music: www.music.umd.edu *(Students majoring in Music may pursue a Bachelor of Music degree*)
Persian Studies: www.persian.umd.edu
Philosophy: www.philosophy.umd.edu
Romance Languages: www.romancelanguages.umd.edu
Russian: www.russian.umd.edu
Spanish: www.spanish.umd.edu
Theatre: www.tdps.umd.edu
Women's Studies: www.womensstudies.umd.edu

The College also offers certificate programs in East Asian Studies; Latin American Studies; Lesbian, Gay, Bisexual and Transgender Studies; and Women's Studies.

Major Requirements

- All students must complete a program of study consisting of a major (a field of concentration) and sometimes supporting courses as specified by one of the academic units of the college. No program of study shall require in excess of 60 semester hours.
- A major shall consist, in addition to the lower-division departmental prerequisites, of 24 to 40 hours, at least 12 of which must be in courses numbered 3xx or 4xx and at least 12 of which must be taken at the University of Maryland, College Park.
- A major program sometimes requires a secondary field of concentration (supporting courses). The nature and number of these courses are determined by the major department.
- No grade lower than "C-" may be used to fulfill major or supporting course requirements. No course for the major or support module may be taken Pass-Fail.
- Students must earn at least a 2.0 cumulative GPA to graduate from the University of Maryland.
- An overall GPA of 2.0 in the major is required for graduation.
- Students should consult the unit in which they will major for specific details; certain units have mandatory advising.
- Students must take a Foreign Language Placement Assessment (http://www.arhu.umd.edu/undergraduate/flpa) prior to adding a major in the College of Arts and Humanities unless the student has fulfilled the required language prerequisites. Students who enter the University as Arts and Humanities majors must take the assessment by the end of their first semester on campus. Bachelor of Music students are exempt from taking the foreign language placement assessment. For more information about Bachelor of Music requirements, please see www.music.umd.edu.

Graduation Requirements

To graduate, all students must earn at least 120 credits and at least a 2.0 cumulative GPA. Additionally, students must complete College of Arts and Humanities requirements.

The following college requirements apply only to students earning Bachelor of Arts degrees from the College of Arts and Humanities. These requirements are in addition to or in fulfillment of campus and departmental requirements. For information concerning the Bachelor of Music in the School of Music, students should consult a Music advisor.

Students who double major in ARHU and another college on campus must complete the ARHU Global Engagement requirement and 45 hours of 3xx or 4xx-level credit.

All Arts and Humanities freshmen (excluding students in College Park Scholars, Design I Cultures + Creativity, Honors Humanities, Entrepreneurship and Innovation, Gemstone, Integrated Life Sciences, or University Honors) must take ARHU158, Explorations in the Arts and Humanities, during their first semester on campus.

Distribution: To encourage advanced mastery of material, a minimum of 45 of the total of 120 semester hours must be 3xx-4xx level work.

For more information about the CORE program, please visit www.ugst.umd.edu/core/

For more information about the General Education program, please visit www.gened.umd.edu/

The Global Engagement Requirement

To expand ARHU students' understanding of other cultures and language in an increasingly global society, ARHU students must complete the "Global Engagement Requirement." Learning a second language produces deep knowledge of cultural as well as linguistic differences while opening pathways for common understanding. The requirement may be satisfied in one of three ways.

Option 1: Study of a Foreign Language

Requirement: Students will take foreign language coursework to the designated level at UMD. Please consult an ARHU advisor for a list of the approved course sequences.

Option 2: Cultural Immersion through Study Abroad

Requirement: Students will participate in a semester long Study Abroad experience in a country where English is not the primary language.

The study abroad experience must include:

1. At least the first year/elementary level language of the host country before or during the experience (or equivalent as determined by the ARHU foreign language placement policy);

2. A reflection component that will challenge students to assess their pre-departure, in country and post study abroad experience;
3. Participation in one of the following pre-approved engagement experiences:

- Internship
- Service Learning
- A living situation involving daily interaction with host nationals (e.g., a pre-approved home stay with a host national family)
- Other - an engagement experience approved in advance of departure

Students must develop a learning contract with an ARHU advisor in advance of studying abroad in order for the experience to count for the Global Engagement Requirement. Past study abroad experiences will not be considered retroactively.

Option 3: Individually-designed Engagement Experience

Requirement: Students may also create an individually-designed experience that achieves the learning outcomes of the global engagement requirement.

This option must include:

1. At least the first year/elementary level language of the host country before or during the experience (or equivalent as determined by the ARHU foreign language placement policy);
2. A pre-approved short- or long-term study abroad program that has been deemed appropriate for inclusion in this option by ARHU in conjunction with the Education Abroad Office;
3. Students must develop a learning contract with an ARHU advisor and petition to have the experience approved in advance.

Students proposing study abroad in an English-speaking country must choose to study a language that has significance to the historical or current culture of the host country. Students will need to research and discuss the intersection of the chosen language and culture in their petition.

Important notes:

1. Students already beyond the required language needed to fulfill the Global Engagement Requirement must document their language proficiency by taking a placement assessment or equivalent as determined by the ARHU foreign language placement policy.
2. Students taking a foreign language class at the University of Maryland on or after 9/15/2011 will need to take a foreign language placement assessment. Please see an ARHU advisor for details.
3. Students seeking exemption from the Global Engagement Requirement must take the foreign language placement assessment in an on-campus proctored environment. Please

see an ARHU advisor or see www.arhu.umd.edu/undergraduate/flpa for the proctored exam schedule.

For more information, please see an advisor in the ARHU Office of Student Affairs, call 301-405-2108, or visit www.arhu.umd.edu/undergraduate/globalengagement.

Advising

Freshmen and new transfer students have advisors in the College of Arts and Humanities, Office of Student Affairs (301-405-2108) who assist them in the selection of courses. Students must see an advisor in their department for assistance in the selection of courses for the major. All first-year students (both freshmen and transfers), students who have completed 45-55 credits, and seniors who have completed 86-100 credits have mandatory advising with both the College and the department. For further information about advising, students should call the ARHU Office of Student Affairs, 301-405-2108.

Internships

Most departments within Arts and Humanities have well-established internship options. For more information on internships taken for academic credit, students should contact their departmental academic advisor. Internship credit is also available directly through the College for students who have fewer than 60 credits, have already completed an internship in their major, or would like to explore an area outside their major. Typically, students must have a 2.5 GPA. They need to complete an application process and the experience usually lasts for a full semester or over the summer. Students must be enrolled for the internship during the semester in which they intern. Retroactive credit and credit for continuing internships will not be awarded. Internships are not considered to be a "credit for work" experience. In addition to participating in the on-site experience, students will also fulfill an academic component. For assistance in locating an internship, visit the University Career Center at ARHU at 1118 Francis Scott Key Hall. Visit www.arhu.umd.edu/careers for more information about walk-in hours and appointment scheduling.

Secondary Education Teacher Certification

A student interested in a career as a secondary education teacher in a subject represented in this college is encouraged to speak with an advisor in the College of Education Office of Student Services (1204 Benjamin Building) to discuss the different pathways available for certification. The College of Education offers programs that lead to certification for grades PreK-12 in Studio Art and World Language (Chinese, French, German, Italian, Russian, Spanish), and grades 7-12 in English and Social Studies (History). Degree pathways that lead to certification include the following: 1) an undergraduate double major in the content area and secondary education, 2) the five-year integrated master's program, which allows for the content major as an undergraduate degree and completion of certification and graduate degree requirements in a fifth year, or 3) the one-year intensive master's plus certification program.

Departments and Centers

Academic Computing Services
1111 Francis Scott Key Hall, 301-405-2104
www.arhu.umd.edu/tech
Assistant Dean: Kathleen R. Cavanaugh

Academic Computing Services (ACS) supports the use of technology by faculty, staff, and students in the College of Arts and Humanities. ACS provides desktop support services for faculty and staff, support for the use of technology to support teaching and learning, and classroom technology support services.

University of Maryland Art Gallery
1202 Parren J. Mitchell Art-Sociology Building
3884 Campus Drive
College Park, MD 20742
301-405-2763
www.artgallery.umd.edu
artgallery@umd.edu
Assistant Director: Taras W. Matla

The University of Maryland Art Gallery presents exhibitions, lectures, film series, residencies, and publications focusing on art and visual culture. Opportunities for museum training and arts management experience are available to students through intern and work-study positions.

David C. Driskell Center for the Study of the Visual Arts and Culture of African Americans and the African Diaspora
1214 Cole Student Activities Building, 301-405-6835
email: driskellcenter@umd.edu
www.driskellcenter.umd.edu
Executive Director: Professor Curlee R. Holton

The David C. Driskell Center for the Study of the Visual Arts and Culture of African Americans and the African Diaspora at the University of Maryland, College Park, honors the legacy of David C. Driskell - Distinguished University Professor Emeritus of Art, Artist, Art Historian, Collector, and Curator - by preserving the rich heritage of African American visual art and culture. Established in 2001, the Center provides an intellectual home for artists, museum professionals, art administrators, and scholars, who are interested in broadening the field of African Diasporic studies. The Driskell Center is committed to collecting, documenting, and presenting African American art as well as replenishing and expanding the field.

Consortium on Race, Gender, and Ethnicity (CRGE)
1208 Cole Student Activities Bldg., 301-405-5223
www.crge.umd.edu
Director: Ruth E. Zambrana
Associate Director: Diana M. Guelespe

Founded in 1998, the Consortium on Race, Gender and Ethnicity (CRGE) is the first university-wide interdisciplinary research center of its kind and has been integral to the process of advancing intersectional qualitative and mixed-methods research on the University of Maryland, College Park campus. CRGE's work explores the intersections of race, gender, ethnicity and other dimensions of inequality as they shape the construction and representation of identities, behavior and complex social relations.

CRGE makes a central contribution to university diversity initiatives through three major areas: research, mentorship and collaboration. We have been awarded nearly 2 million dollars in grants over the last decade and have mentored over 40 undergraduate and graduate students and faculty. CRGE provides a one-week Intersectional Qualitative Research Methods Institute to early career faculty and facilitates a writing group. Its sponsoring of research grants and lecture series has brought great salience to the work done by minority scholars and enabled the development of a university environment sensitive to racial and ethnic diversity.

Center for Innovative Teaching and Learning (CITL)
1202 Jiménez Hall, 301-405-4925; Fax: 301-314-9752
Email: langweb@umd.edu
www.sllc.umd.edu/citl

Faculty Director: Dr. Mary Ellen Scullen
Instructional Designer: Janel Brennan-Tillmann
Coordinator: Jeff Maurer

The Center for Innovative Teaching and Learning (CITL) is a unit within the School of Languages, Literatures and Cultures whose mission is to enhance and support excellence in teaching, learning and research. The Center provides equipment, web support, training, and instructional design for SLLC faculty and staff as well as first tier support for the technology classrooms located in Jimenez Hall and Big 10 Academic Alliance CourseShare courses.

Consultation services are available for course development, assessment, hybrid and blended course redesign, distance learning (via teleconference), grant support, and digitization of course and research materials. The Center also maintains a small media library. Fee-based services for non-SLLC faculty include reserving a technology cart or teleconferencing equipment for use in Jimenez Hall and reserving the SLLC Collaborative Technology Classroom for occasional class meetings.

Living-Learning Programs

Honors Humanities
Director: Professor Gregory A. Staley
0111 Anne Arundel Hall, 301-405-1537
www.honorshumanities.umd.edu
Email: honorshumanities@umd.edu

Entering freshmen participate by invitation in Honors Humanities, a two-year living/learning program. Honors Humanities is the University of Maryland's premier undergraduate program for academically talented students who have diverse intellectual ambitions in the humanities and arts or a desire to develop their education on a liberal arts foundation. The program is organized around an integrated and advanced humanities curriculum and a final independent research or creative project (the Keystone Project) that a student designs and executes with the guidance of a faculty mentor. Honors Humanities provides students with stimulating seminars, life-long friendships, a lively home base in Anne Arundel Hall, and opportunities to take advantage of the intellectual, cultural, and artistic riches of the Washington, D.C. region. Upon completion of the program, students earn an Honors Humanities citation, and this prestigious award is recorded on their university transcripts.

College Park Scholars-Arts
Director: Dr. Harold Burgess
www.scholars.umd.edu
1110 Bel Air Hall, 301-405-0522

The Arts Program, sponsored by the College of Arts and Humanities and Undergraduate Studies, fosters a collaborative learning environment of students, faculty and artists/scholars from the arts community at large to stimulate thoughtful discourse on the practical and theoretical applications of art in connection to communicating big ideas with imagination and purpose.

An extraordinary learning community of spirited and creative individuals, the Arts Scholars program attracts a diverse student population from a wide range of academic disciplines. Arts Scholars share common interests in the desire for creative expression and engagement with the arts while being introduced to a broad selection of interdisciplinary topics through thematically inspired colloquia and supporting courses. Beyond the classroom, students participate in service-learning engagements with local schools and arts non-profit organizations, and attend performances and exhibitions at local and regional cultural institutions. The program nurtures students' familiarity with the creative and artistic processes necessary to develop and present works of art while providing a supportive and fertile environment to build upon their successes (and failures) as a community of engaged learners, creative thinkers and responsible citizens.

Jiménez-Porter Writers' House
Director: Johnna Schmidt
Queen Anne's Hall, 301-405-0671
www.writershouse.umd.edu

The Jiménez-Porter Writers' House (JPWH) is a living and learning program open to all majors. The program was conceived and developed primarily for upper-division students, but will consider applications from academically talented incoming freshmen who have a solid focus on creative writing. Located in Queen Anne's Hall, the Writers' House creates a campus-wide literary center to study creative writing especially in its cross-cultural dimensions. Participants live in a close community of students who share an interest in creating stories, poems, plays, and imaginative non-fiction. Students work with visiting writers, publish a literary magazine, attend special readings and colloquia, produce an annual literary festival, and receive notation upon

successful completion of the program. Class sizes are small, and include one-on-one faculty advising sessions. Admission to the Writers' House is competitive, with only fifty to sixty students living and writing together each year. Applications can be submitted at https://apply.arhu.umd.edu, or by visiting www.writershouse.umd.edu. Final deadline for admission every year is March 1 for currently enrolled University of Maryland students, May 1st for transfer students and incoming freshmen.

Design Cultures + Creativity
Director: Professor Jason Farman
For more information, please contact:
dcc-honors@umd.edu
Phone: 301.405.2866
Twitter: @umd_dcc
dcc.umd.edu

Design Cultures + Creativity (DCC) is a living-learning program in the Honors College that builds a collaborative and experimental environment to explore the relationship between emerging media, society, and creative practices. We are passionate about emerging technologies and their impact on the world. We pursue out-of-the-box thinking on topics such as identity, connectivity, social justice, art, design, and all things creative in an era when digital media links us on a scale unprecedented in human history. Through hands-on collaborative projects, students think beyond disciplinary boundaries and approach problems from multiple perspectives. Our courses (16 credits taken during the first two years), lab space, and workshops provide spaces for exploration, for thinking through ideas, and experimenting with the process of building, designing, and creating. DCC strongly values inclusivity and aims to cultivate life long learners who are critically engaged thinkers. Our students will become the makers and doers of tomorrow, able to expand our notions of human potential, not merely technologically but also socially and creatively.

Language House
Program Director: Dr. Phoenix Liu
0107 St. Mary's Hall, 301-405-6996
http://sllc.umd.edu/language-house
PhoenixL@umd.edu

The Language House Immersion Program was the first living-learning program on campus for students wishing to immerse themselves in the study of foreign languages and cultures. A total of 101 students live in one of ten clusters (Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Persian, Russian or Spanish), which are housed in 19 apartments in St. Mary's Hall. Students must commit to speaking their target language as they prepare meals, do household chores, study and socialize together, etc. Faculty liaisons work with students in each of the language clusters, and a graduate mentor, a native speaker of the language, assists students in the immersion environment. The goal of language immersion is achieved through activities organized by the native mentors, a language-learning computer lab, an audio-visual multi-purpose room, and unlimited access to foreign news and film programs via Internet.

College Honors Program

Most departments in the College of Arts and Humanities offer Departmental Honors Programs (DHP). DHPs are upper-division programs within the individual academic units. Students enrolled in Departmental Honors work independently with faculty members in subjects of special interest, develop and deepen their research skills, and, in the process, earn an even stronger degree. Students must have a cumulative GPA of at least 3.0 to be admitted. For further information about individual Departmental Honors Programs and policies, consult with departmental advisors.

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES (BSOS)

2141 Tydings Hall, 301-405-1679
www.bsos.umd.edu
bsos@umd.edu
Dean: Gregory Ball
Associate Dean(s): Katherine Russell, Wayne McIntosh, Jeffrey Lucas
Assistant Dean(s): Ann Holmes, Mengxue Li, Kim Nickerson, Deborah Rhebergen

The College of Behavioral and Social Sciences at the University of Maryland (BSOS) increases understanding of and pursues innovative solutions to the challenges facing our global community. BSOS draws on its Washington, D.C., and worldwide connections to enrich its teaching, research and service. The BSOS community works to enhance international relations, advance global sustainability, understand societies and cultures and improve the human condition.

In all that we do, BSOS aims to **Be the Solution** to the world's great challenges.

Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

Undergraduate Degree Requirements/Degree Options

- Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative grade point average. Courses must include the credits required in the University's general education requirements and the specific major and supporting course and grade requirements of the programs in the academic departments offering bachelor's degrees.
- Students must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.
- Upon entering BSOS as a freshman, transfer, or by major change, students must complete and submit a graduation plan to the college advising office for review and approval.
- In accordance with university policy, fundamental English and Math requirements must be attempted by 30 credits and successfully completed by 60 credits.
- Students must complete 15 upper level credits in the student's final 30 credits.

- All students are urged to speak with an academic advisor in their major and an advisor in the College Advising Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

Advising

The BSOS Advising Center, located in 2148 Tydings Hall, coordinates undergraduate advising and maintains student records for behavioral and social science students. Advising services are designed to support students from the time they enter the college through graduation. Students may come to the advising center for information concerning University requirements and policies, transfer credit processes, orientation, academic planning, academic support, and career or other post-graduation questions. Appointments are made online (http://bsosundergrad.umd.edu/advising/contact-us) or by calling the front desk. Undergraduate advisors for each undergraduate major are located in the department offices. These advisors are available to assist students in selecting courses and guiding educational experiences in their major area of study consistent with major requirements and students' educational goals. For additional information please visit www.bsosundergrad.umd.edu or call 301-405-1697.

Career Planning and Engagement

The University Career Center @ BSOS is a branch of the UMD University Career Center & The President's Promise. UCC @ BSOS, located in 2148 Tydings Hall, is focused on providing customized services and resources for majors in the College of Behavioral and Social Sciences. UCC @ BSOS works to complement the Career Center's existing resources and programs. Visit the University Career Center @ BSOS website http://bsosundergrad.umd.edu/your-career/your-career) to learn about the resources and upcoming events available for students.

Internships (http://bsosundergrad.umd.edu/engagement/internships) and research experiences (http://bsosundergrad.umd.edu/opportunities/research), education abroad (http://bsosundergrad.umd.edu/opportunities/education-abroad-and-international-opportunities), service learning (http://bsosundergrad.umd.edu/engagement/service-learning), and student leadership opportunities (http://bsosundergrad.umd.edu/engagement/student-leadership) round out a student's academic career and personal development beyond what the traditional academic classroom setting can offer. These important experiences allow students to integrate and apply their learning and to build life-long professional and personal networks of colleagues and friends. Follow the links provided to learn more about these out-of-classroom experiences or schedule an individual consultation with UCC @ BSOS (http://bsosundergrad.umd.edu/your-career/appointments) to take full advantage of the out-of-classroom experiences available at UMD.

Departments and Centers

The college is composed of the following departments, each offering a major program that leads to the Bachelor of Arts or the Bachelor of Science degree, as appropriate:

Department of African American Studies

Department of Anthropology

Department of Criminology and Criminal Justice

Department of Economics

Department of Geographical Sciences (including GIS)

Department of Government and Politics (including International Relations)

Department of Hearing and Speech Sciences

Department of Psychology

Department of Sociology

In addition, the college is a major contributor to the Environmental Science and Policy Program and sponsors several of its areas of concentration.

*The Department of African American Studies also offers an undergraduate certificate requiring 21 semester hours of course work.

Departments and Research Centers are linked from the College website homepage at www.bsos.umd.edu.

Minors

The College of Behavioral and Social Sciences offers the following minors. See individual department or center websites for more information.

- Black Women's Studies (Departments of African American Studies and Women's Studies)
- Geographic Information Science (Department of Geographical Sciences)
- Global Studies (two tracks): International Development and Conflict Management or Global Terrorism
- Hearing and Speech Sciences (Department of Hearing and Speech Sciences)
- Law and Society (MLAW Programs)
- International Development and Conflict Management (Department of Government and Politics)
- Neuroscience (Departments of Psychology and Biology)
- Remote Sensing of Environmental Change (Department of Geographical Sciences)
- Survey Methodology (Joint Program in Survey Methodology)
- Global Terrorism (National Consortium for the Study of Terrorism and Responses to Terrorism)

Living-Learning Programs

Participating in one of Maryland's living-learning communities is one great way for first and second year BSOS students to share their common interests with each other and with faculty in a small, academic, residential community.

Students who are not in a living-learning program are invited to enroll in a special BSOS one-semester course (UNIV100) in their first semester so that they can work closely with an academic advisor and be part of a small, personalized learning community during their first semester on campus.

BSOS students are members of all of the campus living-learning communities, including Honors College, College Park Scholars, CIVICUS, Global Communities, and Carillon Communities. The BSOS College is the academic home for four of these living-learning programs.

CIVICUS
0107 Somerset Hall, 301-405-8759
Interim Faculty Director: Dr. Korey Rothman
www.CIVICUS.umd.edu

CIVICUS is a two-year living and learning program in the College of Behavioral and Social Sciences. This academic citation program is centered on five themes of civil society: citizenship, leadership, community service-learning, community building in a diverse society, and scholarship. CIVICUS was founded on the belief that to be engaged members of civil society, we have an obligation to be aware of the world outside of the classroom and to act upon issues that affect the world in which we live.

Global Communities
0119 Dorchester Hall, 301-314-7100
www.globalcommunities.umd.edu
globalcommunities@umd.edu
Faculty Director: Dr. Virginia Haufler

Global Communities is a two-year living-learning program sponsored by the College of Behavioral and Social Sciences (BSOS). Students participate in a combination of courses, co-curricular opportunities, and residential living organized around the theme of globalization and its challenges and opportunities. The program enriches student understanding of the causes and consequences of the world's interconnectedness, and provides academic and intercultural skills to help them address the issues it raises. We value diversity—cultural, intellectual, and ideological—and seek to provide a tolerant place where differences are celebrated. Participants in the program are part of a network of relationships beyond campus and outside the country.

College Park Scholars, International Studies
1104 Centreville Hall, 301-405-9304
Faculty Director: Dr. James Glass
www.scholars.umd.edu/programs/is/

The International Studies Program brings together undergraduate students from a variety of disciplines who share an interest in global issues, politics, and events. Each entering class of approximately sixty-five students takes courses together during the freshman and sophomore years. The majority of International Studies Scholars reside in Centreville Hall. International Studies was one of the original four College Park Scholars programs launched in 1994, sponsored by the College of Behavioral and Social Sciences (BSOS) and the Department of Government and Politics (GVPT). The Faculty Director and the Teaching Assistants all have their roots in the Department of Government and Politics.

College Park Scholars, Justice and Legal Thought
1121 Cumberland Hall, 301-405-3225
Faculty Director: Dr. Robert Koulish
http://www.scholars.umd.edu/programs/jlt

The Justice and Legal Thought Program brings together undergraduate students from a variety of disciplines to share an interest in law and justice. Each entering class of approximately seventy-five students takes courses together during the freshman and sophomore years. The majority of Justice and Legal Thought Scholars reside in Cumberland Hall, which is also where the JLT office is located. Justice and Legal Thought is the most recent addition to the College Park Scholars Program and is sponsored by the College of Behavioral and Social Sciences (BSOS). It features faculty from multiple disciplines, including the UMD Carey School of Law. The program is designed for each course to complement the one that preceded it, for example to address big questions in new and more advanced ways. It is also designed to allow students to deepen their classroom learning through experiential projects, field trips and social activities.

College Honors Program

Departmental Honors Programs are offered in the departments of African American Studies, Anthropology, Criminology and Criminal Justice, Economics, Geography, Government and Politics, Psychology, and Sociology. Students in a Departmental Honors Program are also members of the campus Honors College.

Dean's List. Any student who has passed at least 12 hours of academic work under the regular grading method in the preceding semester, without failure of any course, and with an overall average grade of at least 3.5, will be placed on the Dean's List. The Distinguished Dean's List consists of students who have completed successfully a minimum of 12 credit hours in a semester with a 4.0.

Honor Societies. Students who excel in their academic discipline may be selected for membership in an honorary society. Examples include:

- Alpha Kappa Delta -- Sociology
- Alpha Phi Sigma -- Criminal Justice
- Gamma Theta Upsilon -- Geography
- Pi Sigma Alpha -- The National Political Science Honor Society
- Psi Chi -- Psychology

Approved Student Societies and Professional Organizations

Students who major in the Behavioral and Social Sciences have a wide range of interests. Students who are interested in student organizations in the disciplines and fields of the Behavioral and Social Sciences should consult with departmental websites for approved student organizations: http://bsosundergrad.umd.edu.

For more information about these student organizations or starting a new student group, please contact the Office of Campus Programs, Adele H. Stamp Student Union, 301-314-7174 or http://orgsync.umd.edu.

Financial Assistance

The college offers scholarship opportunities to current students on a competitive basis. Each scholarship has eligibility criteria. Scholarship information and applications are available on the scholarships page on the BSOS website: http://bsosundergrad.umd.edu/opportunities/scholarships.

Scholarships are sometimes given at the department level. Check with your departmental advisor or your director of undergraduate programs for more information regarding scholarship opportunities that may be available to you.

The National Scholarship Office at the University of Maryland provides information on nationally competitive scholarships at the undergraduate (and graduate) level. For more information, please visit: www.scholarships.umd.edu.

The Office of Student Financial Aid (OFSA) administers offers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

Research Units

The College of Behavioral and Social Sciences sponsors several special purpose, college-wide research centers. These interdisciplinary centers often offer internships and a selected number of undergraduate research assistant opportunities for interested students. These research experiences offer excellent preparation for future graduate study and/or job opportunities in the private and public sectors. Examples include:

Center for the Study of Business, Ethics, Regulation & Crime (C-BERC) (http://www.rhsmith.umd.edu/centers-excellence/cberc) is a diverse unit aimed to generate new ideas and information at the intersection of theory, policy, and practice that will serve as a resource for business leaders, policymakers, and practitioners. The center embraces a unique interdisciplinary approach to the legal and ethical challenges of modern business operations by integrating and extending research in the fields of business ethics, regulation, and criminology.

Center for Substance Abuse Research (CESAR) (http://www.cesar.umd.edu/) works to gather, analyze, and disseminate timely information on issues of substance abuse and monitor alcohol- and drug-use indicators throughout Maryland. CESAR aids state and local governments in responding to the problem of substance abuse by providing the above-stated information, as well as technical assistance and research. CESAR is located at 4321 Hartwick Rd., College Park, MD. Phone: 301-405-9770.

Interindustry Forecasting Project at the University of Maryland (INFORUM) (http://inforumweb.umd.edu/) is dedicated to improving business planning, government policy analysis, and the general understanding of the economic environment. Inforum accomplishes this mission through: Building and using structural economic models of U.S. and other economies; working with government and private sector research sponsors to investigate a variety of issues; serving as a training crucible for University of Maryland graduate and undergraduate students who receive valuable training in empirical economics; and maintaining active and productive ties with a world-wide network of research associates, each of which uses Inforum modeling methods and software. INFORUM is located in the Department of Economics at the University of Maryland, College Park, MD. Phone: 301-405-4609.

Maryland Neuroimaging Center (MNC) (http://www.mnc.umd.edu/home) is the home for neuroimaging research at the University of Maryland. The MNC is an initiative of the university's interdepartmental Neuroscience and Cognitive Science (NACS) Program. MNC is located at 8077 Greenmead Dr., Avrum Gudelsky Bldg #795, University of Maryland, College Park, MD. Phone: 301-405-2092.

Maryland Population Research Center (MPRC) (https://www.popcenter.umd.edu/) draws together leading scholars from diverse disciplines to support, produce, and promote population-related research. The MPRC's members include faculty from the departments of African American Studies, Agricultural and Resource Economics, Anthropology, Criminology and Criminal Justice, Economics, Epidemiology and Biostatistics, Family Studies, Geographical Sciences, Health Services Administration, Human Development, the Joint Program in Survey Methodology, the MD Institute for Applied Environmental Health, Psychology, Behavioral and Community Health, the School of Public Policy, Sociology, and the Consortium on Race, Gender, and Ethnicity. MPRC is located in 0124N Cole Student Activities Building, University of Maryland, College Park, MD. Phone: 301-405-6403.

National Consortium for the Study of Terrorism and Responses to Terrorism (START) (http://www.start.umd.edu/) is a U.S. Department of Homeland Security Center of Excellence, tasked by the Department of Homeland Security's Science and Technology Directorate with using state-of-the-art theories, methods, and data from the social and behavioral sciences to improve understanding of the origins, dynamics, and social and psychological impacts of terrorism. START is located on 8400 Baltimore Avenue, Suite 250, College Park, MD. Phone: 301-405-6600.

Neuroscience and Cognitive Sciences Program (NACS) (http://nacs.umd.edu/) offers research and training opportunities in neuroscience, cognitive neuroscience and computational

neuroscience. These research activities are carried out in laboratories housed in six colleges and 17 different departments on the UMD campus. NACS is located in 2131 Biology-Psychology Bldg, University of Maryland, College Park, MD. Phone: 301-405-8910.

Center for Safe Solutions (http://www.psttap.com/) provides the highest quality managerial, operational and technical support and training to combat drug trafficking and drug abuse; reduce violent crime; reduce gang activity; provide action-oriented criminal intelligence; support Maryland's Department of Public Safety and Correctional Service's distributed database development; and offer internships and jobs to University students. CSS is located at 9001 Edmonston Rd. Ste. 300, Greenbelt, MD 20770. Phone: 301-489-1700.

Office of International and Executive Programs (OIEP) (http://oiep.umd.edu/) initiates, facilitates and coordinates research, teaching, training and associated activities undertaken jointly between departments of the College of Behavioral and Social Sciences at the University of Maryland with partner universities, agencies and organizations in the United States and abroad. By providing strategic advice, programmatic guidance and administrative support, OIEP fosters innovative international collaborations in the form of degree programs, research projects, student and faculty visitor and exchange programs, short-term training courses and more. OIEP is located in 3106 Morrill Hall, College Park, MD. Phone: 301-405-8443.

The Law in Society Minor and Justice and Legal Thought (MLAW) (http://mlaw.umd.edu/) interdisciplinary and experiential approaches to the study of law and its impact on society. MLAW has its academic home in the College of Behavioral & Social Sciences but partners closely with other departments, offices, programs and schools to offer a full range of rich educational experiences and opportunities for students. MLAW is located in 0101 Taliaferro Hall College Park, MD. Phone: 301-405-3179.

In addition to these college-wide research centers, BSOS hosts several departmental research centers (http://bsos.umd.edu/academics-research/all-centers). Please contact individual departments for more information.

Student Engagement and Service Units

Dean's Student Advisory Council

The Dean's Student Advisory Council (DSAC) is charged with advising the dean on various topics affecting students and their educational and social experiences at the University of Maryland. Each academic year, the group hosts academic and social events for students, faculty, and alumni, initiates and implements independent and group projects, and hears ideas and concerns from constituent students.

This council consists of representatives from each department in the College of Behavioral and Social Sciences, the living/learning programs, the Student Government Association, University Senate representatives for the college, and a peer advisor. DSAC members enroll in a credit-bearing course each semester in which they serve on the Council.

For more information, contact the Dean's Student Advisory Council: bsos-ugdean@umd.edu

BSOS Ambassadors

Ambassadors assist with the planning, coordination and execution of special events hosted by the College of Behavioral and Social Sciences, including all major recruiting events. Ambassadors build a strong knowledge base of the behavioral and social science academic disciplines as well as other programs offered by the college so that they may inform prospective students and the public during special events. Ambassadors will have the opportunity to learn valuable leadership, networking and communication skills. Ambassadors enroll in a credit-bearing course each semester they serve on the committee.

For more information contact Margo Shear, Coordinator for Undergraduate Communications & Recruitment at 301-405-4134 or admitbsos@umd.edu.

BSOS Peer Mentors

Peer Mentors teach the BSOS Graduation Planning workshops in the BSOS Adivising Center each semester and conduct presentations in BSOS UNIV100 sections. Through the services they provide to fellow students, Peer Mentors gain leadership, presentation, and public speaking skills. In preparation for their required tasks, all Peer Mentors are expected to attend weekly class sessions and serve for at least two semesters. Students will earn 1 credit after successful completion of each semester.

For more information contact the BSOS Advising Center 301-405-1697 or Brandon Clark bclark24@umd.edu.

THE ROBERT H. SMITH SCHOOL OF BUSINESS (BMGT)

1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu
undergradinfo@rhsmith.umd.edu
Dean: Dr. Alexander Trianits
Associate Dean(s): Dr. Victor Mullins
Assistant Dean(s): Brian Horick

The Robert H. Smith School of Business is an internationally recognized leader in management education and research, and its mission is to create knowledge, promote a learning environment that fosters intellectual discovery, and equip current and future leaders to assess complex problems and deliver innovative solutions.

The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting, www.aacsb.edu.

A student in the Smith School of Business, selects a major(s) in one of the following curricula: (1) Accounting; (2) Finance; (3) Information Systems; (4) International Business; (5) Management; (6) Marketing; (7) Operations Management & Business Analytics; or (8) Supply Chain Management. Upper-division BMGT programs are offered at College Park and at the Universities at Shady Grove (http://www.shadygrove.umd.edu/) in Montgomery County. For details on the majors offered at Shady Grove visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/shady-grove.

Admission Requirements

See "Admission Requirements and Application Procedures" chapter for general LEP admissions policies.

Freshman Admission

Direct admission to the Smith School is offered on space-available basis to first-time applicants who present the most competitive academic records. All students admitted directly to BMGT as freshmen must demonstrate satisfactory progress.

- All students admitted as freshmen must demonstrate satisfactory progress (2.0 GPA or better) plus completion of Gateway courses (BMGT220, BMGT230, and MATH120, 130 or 140 - each with a minimum grade of "C-" or better) by the semester they reach 45 credits (excluding AP and ESL), at which time they will be reviewed in order to continue in the Smith School major. (Note: Only one repeat of one single course to the set of Gateway courses will be accepted to remain in BMGT. Appeals will be considered.)

Transfer Admission for Students from On or Off Campus

All students applying for admission to BMGT as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the Smith School of Business program at each program location. Internal and external transfer students may apply to compete for admission to the Smith School of Business in the semester they have earned 45 credits. Below are the current admission standards.

- Minimum 3.0 cumulative GPA (preferred, may vary based upon the applicant pool)
- Completion of the following Gateway courses, all with "C-" or better:

  BMGT220: Accounting
  MATH120, 130 or 140: Calculus
  BMGT230*or BMGT231[#]: Business Statistics

  *The following courses are approved substitutes for BMGT230: BIOM301, ECON230, ECON321, EDMS451, GEOG305, PSYC200, and SOCY201.

[#]The following courses are approved substitutes for BMGT231: ENCE302, ENEE324, ENME392, or STAT400

- Co-curricular involvement, leadership experience and honors and awards will also be considered in the admission decision. Students are strongly encouraged to submit with their applications a resume and letter detailing their accomplishments and experience.

Application Deadlines for Transfer Students: Complete applications and all supporting documents must be received no later than:

Fall Semester:	March 15th
Spring Semester:	October 15th

Applicants who have earned 45 credits and completed all required gateway courses at the time of their application will be notified of their admission decision in early April for fall admission and early December for spring admission. Students who are in the process of completing the required gateways or accumulating 45 credits at the time of their application will be notified of their admission decision after the semester has ended and final grades for the semester have been calculated.

For additional details visit http://lep.umd.edu/ and http://lep.umd.edu/bmgt-lep.pdf.

Applications to the Smith School can be accessed at http://www.rhsmith.umd.edu/programs/undergraduate-programs/admissions. For questions, call 301-314-8385 or email lep@umd.edu.

Any student denied admission or dismissed from the major may appeal to the Associate Dean of the College.

Statement of Policy on Transfer of Credit from Community Colleges
It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, introduction to computing (equivalent to BMGT201), or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

Other Institutions
The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior-level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

Undergraduate Degree Requirements/Degree Options

The University confers the following degrees: Bachelor of Science (B.S.), Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at www.rhsmith.umd.edu.

Undergraduate Program
The undergraduate program recognizes the need for professional education in business and management based on a foundation in the liberal arts. In addition, the program's internationally integrated curriculum prepares students to be effective and responsible managers in today's dynamic business environment.

A student in business and management selects a major in one of several curricula: (1) Accounting; (2) Information Systems: Specialization Business; (3) Finance; (4) General Business; (5) International Business; (6) Operations Management & Business Analytics; (7) Marketing; (8) Supply Chain Management.

Summary of Bachelor of Science Degree Requirements (all curricula)
At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. 50% of the required BMGT credit hours must be completed at the University of Maryland, College Park. A minimum of 58 hours of the required 120 hours must be in 300- or 400-level courses. In addition to the requirement of an overall cumulative grade point average of 2.0 ("C" average) in all university course work, all business majors must earn a "C-" or better in all required courses, including Economics, Mathematics, and Communication. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements. Electives outside the curricula of the School may be taken in any department of the university, if the student has the necessary prerequisites.

		Credits
	Freshman-Sophomore School Requirements	
BMGT110	Intro to the Business Value Chain	3
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
ECON200	Principles of Microeconomics	3
ECON201	Principles of Macroeconomics	3
	One from:	
MATH120	Elementary Calculus I	3
MATH140	Calculus I	4

Note: MATH130 Calculus I for the Life Sciences is an acceptable substitute for MATH120/220/140 if the student completed MATH130 as a part of work toward a previous major, as well as those who were working toward that major while in Letters & Sciences.

	One from:	
BMGT230	Business Statistics	3
BMGT231	Statistical Models for Business	3
	One from:	
COMM100	Foundations of Speech Communication	3
COMM107	Speech Communication	3
COMM200	Critical Thinking and Speaking	3
	Note: Any course that fulfills the University's Oral Communication General Education requirement will also satisfy the Smith School's public speaking requirement.	
	Total	**26-27**
	Junior-Senior School Requirements	
BMGT301	Introduction to Information Systems	3
BMGT340	Business Finance	3
BMGT350	Marketing Principles and Organization	3
BMGT364	Management and Organizational Theory	3
BMGT367	Career Search Strategies in Business	1
BMGT380	Business Law	3
BMGT495	Business Policies	3
ECON	Economics - see below	0-3
	Total	**19-25**

Economics Requirements

0-3 credits of approved upper-level economics courses are required by the Smith School of Business. The specific requirements for each major are listed with the majors' specific requirements.

Major Requirements

In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See individual major listings in Chapter 7.

A Typical Program for the Freshman and Sophomore Years

	Credits
Freshman Year	
General Education and/or Electives	6
ENGL101 or equivalent	3
MATH *(depending on placement)**	3
BMGT110	3
First Semester Total	**15**
General Education and/or Electives	6
ECON200	3
COMM100, 107 or 200	3
MATH or BMGT230/231*	3
Second Semester Total	**15**
Sophomore Year	
General Education and/or Electives	10
BMGT220 *(Prereq Sophomore Standing)*	3
ECON201	3
Third Semester Total	**16**
General Education and/or Electives	10
BMGT221 *(Prereq BMGT220)*	3
BMGT230 **or** 231 **or** Elective	3
Fourth Semester Total	**16**

**See Freshman-Sophomore School requirements for appropriate math and statistics courses.*

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://www.orientation.umd.edu.

Minors

The Smith School offers a minors in Business Analytics, General Business, and Innovation & Entrepreneurship. For details on these minors visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/academic-minors.

Specialized Academic Programs

The Smith School offers innovative special programs that create small communities of scholars within the larger Smith School community. For more information on the Smith School's special programs please visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/fellows-special-programs.

College Honors Program

The Smith School Business Honors program offers students with superior academic achievements special opportunities and resources, including the opportunity to participate in cutting-edge research on business issues, and to graduate with honors. Students in the honors program take their upper-level BMGT core courses in small, seminar-style honors sections which allow in-depth exploration of business topics in marketing, finance, management and organization, business law, and policy and strategy. The Business Honors Program provides both a non-thesis and a thesis option, in which students work on an original research project under the supervision of a Smith School faculty member. Admission to the Smith School Honors Program is competitive. Students are selected on the basis of the following requirements:

- Minimum 3.5 cumulative grade point average
- Minimum 45 credit hours earned
- Completion of all BMGT pre-requisite courses by the end of the semester during which the student is applying to the program:

  Principles of Accounting I and II: BMGT220 and 221
  Business Statistics: BMGT230 (or 231)
  Calculus: MATH120 or 140
  Principles of Micro- and Macro- Economics: ECON200 and 201

Admission to the Smith School Honors Program takes place in both the fall and spring semesters. For more information on the Smith School's Honors Program, please visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/fellows-special-programs/business-honors.

Approved Student Societies and Professional Organizations

Student Professional Organizations
Students may choose to associate themselves with one or more professional organizations offered under the umbrella organization, Smith Undergraduate Student Association (SUSA). For more details, visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/community/clubs-organizations.

Awards

Scholarships
For details on available scholarships, please click on the scholarships tab at http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/scholarships.

COLLEGE OF COMPUTER, MATHEMATICAL, AND NATURAL SCIENCES (CMNS)

2300 Symons Hall, 301-405-4906
www.cmns.umd.edu
Dean: Jayanth R. Banavar
Associate Dean(s): Robert Infantino, Wolfgang Losert
Assistant Dean(s): Lisa Bradley-Klemko, Joelle Presson

Nationally and internationally recognized for our educational programs, research excellence, distinguished faculty and students, the College of Computer, Mathematical, and Natural Sciences (CMNS) (http://cmns.umd.edu/) is a critical educational and scientific resource benefiting the region and the nation. The College offers every student a high-quality, innovative, and cross-disciplinary educational experience. Strongly committed to making studies in the sciences available to all, the College actively encourages and supports the recruitment and retention of women and minorities underrepresented in our disciplines.

Our students participate in the Honors College (http://www.honors.umd.edu/), College Park Scholars (http://www.scholars.umd.edu/), the First-Year Innovation & Research Experience (FIRE) Program (http://fire.umd.edu/), Quest (http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/fellows-special-programs/quest) and the Hinman CEOs programs (http://www.mtech.umd.edu/hinman/), other living learning communities, departmental honors programs, and many other co-curricular opportunities. Our students pursue research projects in faculty laboratories, or in the rich cluster of federal and private research institutions in proximity to our campus; they apply their lab and classroom skills through internships at area companies, non-governmental organizations, and in clinical settings. Excellent advising and career services guide our students through their academic program, and facilitate transition to graduate programs and professional schools, private-sector employment, and public service careers. Our innovative and entrepreneurial graduates pursue careers in a great many fields and professions.

In collaboration with the College of Education, we are working to increase the quality and number of teachers prepared to teach science and mathematics in secondary schools. In Fall 2014, we launched an innovative new program, Terrapin Teachers (http://www.tt.umd.edu/), support in part by a grant from the Howard Hughes Medical Institute. Our students in this new program are gaining experience through their science and pedagogy coursework, and are making an impact through work in local K-12 schools beginning in their first semester in the program.

Admission Requirements

Freshmen and transfer students interested in applying for admission should consult with the general university admissions information provided in Chapter 1 of this catalog. Admission to some CMNS majors is limited - please consult the information in Chapter 1 or the following link for information about Limited Enrollment Programs (http://lep.umd.edu/). Freshmen considering a major in a CMNS discipline should pursue a high school program of studies that includes four years of mathematics - preferably including algebra, geometry, pre-calculus, and calculus or

more advanced topics. Students interested in pursuing majors in the life sciences and physical sciences should take three to four courses in the biological and physical sciences with laboratory. Students interested in Computer Science are encouraged to take high school Computer Science coursework, including AP Computer Science if it is available. Math and science courses work at the honors/AP/IB level is strongly encouraged.

For more information about admissions to the College, please contact Ms. Eden Garosi, CMNS Coordinator of Admissions Counseling and Recruitment, egarosi@umd.edu, 301-314-8375.

Undergraduate Degree Requirements/Degree Options

Please see individual department/major entries in Chapter 7 for specific information about specific undergraduate major requirements.

Advising

Every student in the College is assigned an academic advisor, who may be a faculty member or a professional staff member of the College or academic department. Advisors work with students to develop their programs and to ensure that they are making required progress toward the degree. Educational and career goals, academic progress, and pre-registration course planning are among the topics discussed during advising sessions. Advisors can also help students connect to valuable opportunities and resources on- and off-campus.

Advising is mandatory for most CMNS students, and all are encouraged to take advantage of this service. Specific information about advising appears on the College website at cmns.umd.edu/undergraduate/advising-academic-planning.

The University Career Center & The President's Promise (https://careers.umd.edu/) provides a diverse array of resources and opportunities for students to explore and develop career-related aspirations – beginning as new students and even serving Terp alumni. The University Career Center@CMNS is a partnership that provides college-level career services support and activities more focused on the needs of CMNS majors. For more information, contact UCC@CMNS Program Director Rachel Wobrak (rwobrak@umd.edu) 1320 Symons Hall.

Students interested in pursuing careers in the health professions can find additional advising support from the Reed-Yorke Health Professions Advising Office (http://www.prehealth.umd.edu/), 1210 H.J Patterson Hall, 301-405-7805.

Departments and Centers

The following academic departments deliver undergraduate courses and degree programs in CMNS:

Department of Atmospheric and Oceanic Science (http://www.atmos.umd.edu/)
Department of Astronomy (http://www.astro.umd.edu/)
Department of Biology (http://biology.umd.edu/)

Department of Cell Biology and Molecular Genetics (http://cbmg.umd.edu/)
Department of Chemistry and Biochemistry (http://www.chem.umd.edu/)
Department of Computer Science (http://www.cs.umd.edu/)
Department of Entomology (http://entomology.umd.edu/)
Department of Geology (http://www.geol.umd.edu/)
Department of Mathematics (http://www-math.umd.edu/)
Department of Physics (http://umdphysics.umd.edu/)

Undergraduates in CMNS also participate in research and co-curricular activities of the research programs, institutes, and centers of the college listed in the Research Units section below.

Majors

Astronomy
Atmospheric and Oceanic Science
Biochemistry
Biological Sciences
Chemistry
Computer Science
Environmental Science and Policy - Biodiversity and Conservation
Geology
Mathematics
Physical Sciences
Physics

Minors

The College offers minors in the following areas: Actuarial Mathematics, Astronomy, Atmospheric Chemistry, Atmospheric Science, Computer Science, Earth History, Earth Material Properties, Geochemistry, Geophysics, Hydrology, Mathematics, Meteorology, Physics, Planetary Science, Statistics, and Surficial Geology.

Living-Learning Programs

The College sponsors several living-learning programs which offer special academic and co-curricular opportunities to participants.

Advanced Cybersecurity Experiences for Students (ACES) (http://www.aces.umd.edu/) is the newest living learning program in the Honors College (http://www.honors.umd.edu/). It exposes students to the breadth of technical and non-technical aspects of this emerging field, preparing future leaders in the field of cybersecurity through an interdisciplinary curriculum, hands-on experience with real-world problems, and internships with companies and government agencies. Program Director - Dr. Michel Cukier.

The Integrated Life Sciences Program (ILS) (http://www.ils.umd.edu/) in the University Honors College was created to offer students enhanced cross-disciplinary training in the life sciences

through an innovative curriculum and research and internship opportunities. The ILS program is directed by Dr. Todd Cooke.

CMNS faculty members also contribute to the course offerings of the Design Cultures & Creativity (http://dcc.umd.edu/) honors program that emphasizes interdisciplinary approaches to exploring emerging technologies and their global impacts.

The College sponsors three programs in the College Park Scholars (CPS) (http://www.scholars.umd.edu/) living-learning program which draw upon the breadth of the academic disciplines and faculty expertise in CMNS. Each of these two-year programs brings students together around a common disciplinary focus through courses, seminars, and experiential learning opportunities. The programs inspire students to develop their interests and intellectual capacity by building a community in which everyone has shared interests in scholarly pursuits, in close contact with faculty who are working at the forefront of their fields of expertise.

CPS - Life Sciences (http://www.scholars.umd.edu/programs/ls)
Director: Dr. Reid Compton
Assistant Director: Ms. Jess Wilke

CPS - Science, Discovery & the Universe (http://www.scholars.umd.edu/programs/sdu)
Director: Dr. Alan C. Peel
CPS - Science and Global Change (http://www.scholars.umd.edu/programs/sgc)

Director: Dr. Thomas R. Holtz, Jr.
Associate Director: Dr. John Merck, Jr.

Specialized Academic Programs

An important part of the content of CMNS majors is delivered outside the classroom, with the greatest emphasis being on leveraging our strength: research. Our students experience scientific discovery first hand, as conceptual learning in class is integrated and applied. Each major provides access to a variety of research experiences that will provide opportunities to collaborate with faculty members, postdoctoral fellows, graduate, and undergraduate students. Our geographic location also offers many unique opportunities for students to gain research and internship experience in federal laboratories and agencies, private companies, and non-governmental organizations. Employers and graduate schools look for research experience in applicants. Be a part of the science discovery in CMNS, which places the college among the top public and private universities worldwide. More information about research opportunities are provided on the college website (http://cmns.umd.edu/undergraduate/research-internships), and on departmental webpages.

College Honors Program

In addition to our living learning programs described above, CMNS departments offer research-intensive departmental honors programs to which students may apply. Based on a student's performance in a multi-semester mentored research project and defense of a written thesis, the department may recommend that candidates receive their bachelor's degree with Departmental Honors or Departmental High Honors. Successful completion of departmental honors is recognized on a student's diploma and transcript. Participation in the University Honors College is not a prerequisite for participation in departmental honors programs. See individual CMNS department websites (http://cmns.umd.edu/departments) for more information.

Financial Assistance

The College Scholarships page (http://cmns.umd.edu/undergraduate/scholarships) provides a list of scholarships and awards administered at the College level for currently enrolled students, and information about the application process. Students complete an electronic application to be considered for all merit and need-based scholarships administered by the College for which they are eligible. The annual application deadline for scholarship applications for returning students is in May.

See department websites (http://cmns.umd.edu/departments) for more information about undergraduate scholarships based in the departments of CMNS.

Awards

See the College website for a complete listing of undergraduate scholarships and awards (http://cmns.umd.edu/undergraduate/scholarships).

Research Units

In addition to our academic departments, many undergraduate students pursue mentored research projects in the College's research centers and institutes. Contact information for the centers and institutes are provided below. Information about the scope of research in the unit, as well as affiliated faculty, is provided on the website of each center or institute.

Center for Bioinformatics and Computational Biology (http://www.cbcb.umd.edu/)
3115 Biomolecular Sciences Building, 301-405-5936
Professor and Director: Eytan Ruppin

Center for Health-related Informatics and Bioimaging (http://www.chib.umd.edu/)
2119 A.V. Williams Building, 301-405-6722
Professor and Director: Amitah Varshney

Center for Nanophysics and Advanced Materials (http://www.cnam.umd.edu/)
0368 Physics Building, 301-405-8285
Professor and Director: Johnpierre Paglione

Center for Scientific Computation and Mathematical Modeling
(http://www.cscamm.umd.edu/)
4149 Computer Science Instructional Center, 301-405-0648
Professor and Director: Pierre-Emmanuel Jabin

Earth System Science Interdisciplinary Center (http://essic.umd.edu/)
5825 University Research Court, 301-405-5599
Professor and Interim Director: Fernando Miralles-Wilhelm

Institute for Advanced Computer Studies (http://www.umiacs.umd.edu/)
2119 A.V. Williams Building, 301-405-6722
Professor and Interim Director: Mihai Pop

Institute for Physical Science and Technology (http://www.ipst.umd.edu/)
4211 Computer and Space Sciences Building, 301-405-4814
Professor and Director: Christopher Jarzynski

Institute for Research in Electronics and Applied Physics (http://ireap.umd.edu/)
Energy Research Facility, 301-405-4951
Associate Professor and Director: Thomas E. Murphy

Joint Center for Quantum Information and Computer Science (http://quics.umd.edu/)
3100 Computer and Space Sciences Building, 301-314-1840
Associate Professor and Co-Director: Andrew Childs
Co-Director: Jacob Taylor

Joint Quantum Institute (http://jqi.umd.edu/)
2207 Computer and Space Sciences Building, 301-405-1300
Professor and Co-Director: Frederick Wellstood
Co-Director: Charles Clark

Joint Space-Science Institute (https://jsi.astro.umd.edu/)
Professor and Co-Director: James Drake
301-405-1507

Maryland Cybersecurity Center (http://www.cyber.umd.edu/)
3400 A.V. Williams Building
Professor and Director: Jonathan Katz

Maryland Nanocenter (https://www.nanocenter.umd.edu/)
1119 Kim Engineering Building
Professor and Director: Gary Rubloff

Maryland Pathogen Research Institute (http://cbmg.umd.edu/mpri)
3102 Bioscience Research Building, 301-405-2156
Professor and Director: David Mosser

Norbert Wiener Center for Harmonic Analysis and Applications
(http://www.norbertwiener.umd.edu/)
2211 Mathematics Building, 301-405-5058
Professor and Director: John J. Benedetto

National Socio-Environmental Synthesis Center (SESYNC) (http://www.sesync.org/)
One Park Place, Suite 300, Annapolis MD, 410-919-4810
Professor and Director: Margaret Palmer

Student Engagement and Service Units

The College Student Services Office coordinates orientation and advising services, reviews dean's exception to policy requests, and fields inquiries about academic regulations, transfer credit review, study abroad, and other undergraduate program matters. Each department is also served by an undergraduate program office which coordinates departmental academic advising

CMNS Student Services Office
1300 Symons Hall
301-405-2080
cmnsque@umd.edu

Students interested in pursuing careers in the health professions can find additional advising support from the Reed-Yorke Health Professions Advising Office (http://www.prehealth.umd.edu/), 1210 H.J Patterson Hall, 301-405-7805.

COLLEGE OF EDUCATION (EDUC)

1204 Benjamin Building, 301-405-2344
www.education.umd.edu/studentinfo
Dean: Donna L. Wiseman
Associate Dean(s): Margaret J. McLaughlin, Jennifer King Rice
Assistant Dean(s): Kathleen A. Angeletti

The College of Education is a professional college committed to preparing accomplished beginning and advanced-level professionals who can advance the learning and development of their students and who are ready to become leaders in their fields. The College seeks to foster the learning and development of PK-16 students through our educator preparation programs, leadership, research, advocacy, and partnerships. Educational inequities exist on multiple levels; therefore, we aim to prepare educators with the skills and commitments necessary to ensure equity for all students in the public schools and classrooms they will lead.

The college programs prepare educators, counselors, psychologists, administrators, researchers, and educational specialists. Graduates work with individuals from infancy through adulthood in schools, community agencies, colleges and universities. Educational programs are accredited/approved by the following: Council for the Accreditation of Educator Preparation

(CAEP)/National Council for Accreditation of Teacher Education (NCATE), Maryland State Department of Education (MSDE), and the American Psychological Association. Accreditation provides reciprocal certification with most other states that recognize national accreditation.

MSDE issues certificates to teach in the public schools of the state. In addition to graduation from an approved program, MSDE requires satisfactory scores on the state Praxis licensure exams for certification. At the time of graduation, the College informs MSDE of the graduates' eligibility for certification. Under Maryland law, criminal background checks may be required and considered by MSDE in the awarding of teaching certification, and by employers before granting employment in the teaching field. Certification may be denied or revoked for individuals who have been convicted of crimes of violence and/or crimes against children. Additionally, some Maryland counties require a criminal background check prior to placement in an internship.

Special Advantages and Facilities

Students in the College of Education have the opportunity to work with an exemplary faculty. Among our ranks are nationally known faculty researchers who have made significant contributions to advancing theory and improving professional practice. In addition, the College's strategic location provides students with research opportunities that are unparalleled. Teacher candidates can complete their teaching internship and conduct research in school districts with highly diverse populations. The region also provides access to several research libraries, government agencies, not-for-profit organizations, and educational associations.

The College of Education offers many special resources and facilities to students, faculty, and the community, including the following centers:

- ***The Center for Mathematics Education*** provides a mathematics laboratory for undergraduate and graduate students. Occasionally there are tutoring services for children and adolescents. These services are offered in conjunction with special graduate and undergraduate courses in elementary and secondary school mathematics. Center faculty are engaged in research in mathematics education, serve as consultants to school systems and instructional publishers, and provide in-service teacher education in addition to graduate degree programs.

- The ***Center for Young Children*** is part of the Institute for Child Study/Human Development in the College of Education. It offers a creative learning experience for children three, four, and five years old. The Center engages in child study, curriculum development, and teacher preparation. Its research and observation facilities are available to parents, faculty, and other persons concerned with the care and education of young children.

Admission Requirements

Admission to Teacher Education Professional Course Work

Applicants to the University of Maryland who have declared an interest in education are admitted to a department in the College. All majors must meet the selective admission requirements for full admission into the College of Education in order to enroll in the professional sequence of the teacher education degree programs.

The admission process includes three steps:

1. **Pre-Admission Review:** Candidates must (1) complete the English and math lower-level fundamental studies (six credits) with a grade of "C-" or better; (2) earn 45 semester hours with an overall cumulative grade point average of at least 2.75 on a 4.0 scale; (3) complete gateway and/or specialization or major requirements for the program area with a minimum 2.70 GPA, and earn at least a "B" in any Education course identified by the program as a specific gateway prerequisite; (4) submit a personal goal statement that indicates an appropriate commitment to professional education; (5) have prior experiences in the education field; (6) submit three letters of recommendation/reference; (7) receive satisfactory ratings on the College of Education Technical Standards/Foundational Competencies (or submit a signed copy of the College of Education Foundational Competencies/Technical Standards Self-Assessment if formal evaluations have not yet occurred); (8) submit criminal history disclosure statement; and, (9) have passing scores on the Praxis I.
2. **Program Faculty review** the applications of the candidates who meet the above criteria and rate them on six components: (1) overall GPA, (2) GPA in gateway/specialization/major, (3) rating for prior experience, (4) rating of recommendations, (5) rating of application essay, and (6) review of Foundational Competencies evaluation/self-report.
3. **The faculty sets a minimum cut score for eligibility** based upon several factors (e.g., instructional resource capacity of the program/department, Professional Development School (PDS) placement capacity in the certification area, availability of high quality mentors in the certification area, work force need in the state, etc.). Candidates meeting at least minimum cut scores are scheduled for interviews. Program faculty re-ranks candidates based on aggregate scores from the complete profile - i.e., the six factors in step 2 plus the interview. The highest ranking individuals using the aggregate score are offered admission. [The total number admitted is based on target enrollment guidelines.]

Admission application forms are available in Room 1204 of the Benjamin Building. Only those who are admitted are able to enroll in the professional education sequence. An overall grade point average of 2.75 must be maintained after admission to Teacher Education to continue in the professional education programs. The program faculty is able to recommend selected other candidates for Discretionary Admission based on any of a variety of special considerations. Consult the Student Services Office (Room 1204 Benjamin Bldg.) for policies and procedures regarding Discretionary Admission.

Criteria for admission to the Teacher Education program apply to any teacher preparation program offered by the University of Maryland. Thus, undergraduates desiring a major in music or physical education should apply to the College of Education for admission to the professional program in Teacher Education. Individuals who are not enrolled in the College of Education but who, through an established cooperative program with another college are preparing to teach, must meet all admission, scholastic and curricular requirements of the College of Education. The courses in the professional education sequence are restricted to teacher candidates who are enrolled in an approved teacher preparation program and degree-seeking majors who have met College of Education requirements for admission and retention.

Gateway Requirements for Early Childhood and Elementary Education Programs
In order to meet the Maryland State Department of Education's (MSDE's) institutional performance criteria for the Redesign (i.e. strong math and science background for early childhood and elementary education teacher candidates), prospective majors in these programs need to fulfill additional performance criteria. In addition to the requirements for admission to teacher education that are listed above, early childhood and elementary education majors must satisfy the following gateway requirements:

1. Completion of a four-credit general education laboratory physical science, a four-credit general education laboratory biological science, Elements of Numbers and Operations (MATH212), and Elements of Geometry and Measurement (MATH213) with a minimum grade of "C-" in each class and a 2.7 cumulative GPA across all four courses.

2.Completion of Looking Inside Schools and Classrooms (EDCI280) or Exploring Teaching in Early Childhood (EDHD220) with a grade of "B-" or better.

3. Passing scores on the Praxis I: Academic Skills Assessments (Applicants will be required to meet the individual cut-off scores for each of the three Praxis I assessments. A composite score will not be accepted for admission.)

In keeping with the campus undergraduate admissions policy, the College of Education will admit as many freshmen as possible as "pre-service" education majors. Internal and external transfers who have completed fewer than 60 credits and who have not yet met the standards required for enrollment in the professional degree programs also will be admitted as "pre-service" education majors. For directly admitted freshmen, the above admission requirements will serve as the criteria for the sophomore (early childhood, elementary, and special education) or junior (secondary education) level review. For internal and external transfers, these criteria make up the "gateway." Teacher candidates who pass the sophomore/junior level review or the gateway will be admitted into the professional degree programs. Transfers with sixty or more credits will be granted permission to enroll as a pre-service major in education, provided they have maintained at least a 2.75 GPA and successfully completed the lower-level fundamental studies with a minimum grade of "C-" or better. These individuals will be given one semester to meet the requirements for admission to teacher education.

Detailed information regarding admission to the Teacher Education program, including the

gateway requirements for Early Childhood or Elementary Education, is available in the Student Services Office, Room 1204 Benjamin (301-405-2344).

Undergraduate Degree Requirements/Degree Options

The College of Education confers the degrees of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) depending on the amount of liberal arts study included in a particular degree program. Minimum requirements for graduation are 120 semester hours. Specific departmental program requirements for more than the minimum must be fulfilled.

In addition to the university's general education requirements and the specific requirements for each curriculum, the College requires that all majors complete a Foundations of Education course (e.g., EDPS301) and, depending upon the teacher education major, six to twelve semester hours of reading course requirements. A grade of "C-" or better is required in all pre-professional and professional course work required for the major. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. A grade of "S" is required in the teaching internship. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Detailed information about the Praxis assessments is available in the Student Services Office, Room 1204 Benjamin.

Exceptions to curricular requirements and rules of the College of Education must be recommended by the teacher candidate's advisor and department chairperson and approved by the Dean.

Yearlong Internship

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school - Professional Development School (PDS)). Each teacher candidate's internship will vary according to the unique attributes of their teacher education program. All internships will provide teacher candidates with the opportunity to integrate theory and practice through a comprehensive, reality-based experience. The yearlong internship is arranged through the College of Education in collaboration with the school site coordinators, PDS Coordinators, and the designated schools in the partnership.

The yearlong internship is a full-time commitment. Interference with this responsibility because of employment or course work is strongly discouraged. Teacher candidates assigned to schools for this internship are responsible for their own transportation and living arrangements and should be prepared to travel to whichever school has been assigned. The final semester of the yearlong internship requires a special fee. Please consult the course listings within Testudo for the current lab fee. During the teaching internship, teacher candidates should be prepared to adhere to the academic schedule/calendar for the school system in which they are placed.

In order to receive a yearlong internship placement, all teacher candidates must make application the semester prior to the internship year. Prospective interns must have been admitted to Teacher Education and have completed all prerequisites. Prior to assignment, all candidates in teacher

preparation programs must have: (1) maintained a minimum overall grade point average of at least 2.75 with a minimum grade of "C-" in every course required for the major; (2) satisfactorily completed all other required course work in their program; (3) received a favorable recommendation from their department; (4) attained qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments; (5) applied for a year-long internship placement through the College of Education during the semester prior to the internship year; (6) received favorable ratings from prior supervised experiences in school settings; (7) received favorable evaluations on the College of Education Foundational Competencies/Technical Standards; and (8) submitted a criminal history disclosure statement. In addition, state law gives the local school to which the intern is assigned the discretion to require a criminal background check prior to placement. Early Childhood Education majors must have a certificate indicating freedom from tuberculosis and proof of immunization.

Note: All registrations in the teaching internship, regardless of whether an intern withdraws or takes a leave of absence, will be counted as an attempt under the campus repeat policy. Only two registrations will be allowed. After two registrations, further attempts at the teaching internship must be approved by the department and the school system professionals involved in the teacher candidate's internship experience.

College of Education Foundational Competencies/Technical Standards

All candidates in the UM professional preparation programs are expected to demonstrate that they are prepared to work with children and youth in educational settings. This preparation results from the combination of successful completion of university coursework and field/internship experiences and the demonstration of important human characteristics and dispositions that all educators should possess. These characteristics and dispositions, the College of Education Foundational Competencies/Technical Standards, are grouped into seven categories: English Language Competence, Interpersonal Competence, Work and Task Management, Analytic/Reasoning Competencies, Professional Conduct, Physical Abilities, and Professional Dispositions.

Foundational Competencies/Technical Standards serve several important functions, including, but not limited to: (a) providing information to those considering pre K-12 and community professional careers that will help such individuals in their career decision-making; (b) advising applicants of non-academic criteria considered in admissions decisions made by the University's pre K-12 and community professional preparation programs; (c) serving as the basis for feedback provided to candidates in these programs regarding their progress toward mastery of all program objectives; and (d) serving as the basis for the final assessment of attainment of graduation requirements and recommendation for certification.

Candidates in the undergraduate teacher preparation programs will be required to achieve satisfactory ratings on the College of Education Foundational Competencies/Technical Standards (or, if evaluations are not yet available, submit a College of Education Foundational Competencies/Technical Standards Acknowledgment Form) as part of the College's selective admissions review in the sophomore or junior year. Self-assessments of candidates and faculty evaluations on the Foundational Competencies/Technical Standards also will occur during each

field/internship experience. Teacher candidates will be monitored and given feedback throughout the program. At specified points, they will be notified of inadequacies that may prevent them from progressing through their program. Documentation and consensus regarding the teacher candidate's functioning will be sought before any action is taken. Candidates who experience deficiencies in any areas will be encouraged to seek appropriate professional help from university or other sources. If the problem seems to be beyond remediation, admission and/or continuation in the professional programs, graduation, or recommendation for certification may be denied.

Foundational Competencies/Technical standards may be met with, or without, accommodations. The University complies with the requirements of Section 504 of the Rehabilitation Act and the Americans with Disabilities Act of 1990. Therefore, the College of Education will endeavor to make reasonable accommodations with respect to these standards for an applicant with a disability who is otherwise qualified. For detailed information on the College of Education-Foundational Competencies/Technical Standards, see www.education.umd.edu/studentinfo/teachercert.html.

LiveText Portfolio Requirement:

The College recently instituted a new learning electronic portfolio and accreditation management system for its teacher preparation programs. An active subscription to LiveText is a requirement for the courses that comprise the professional education curriculum. Teacher candidates will be expected to submit a number of their course and portfolio assignments through LiveText.

The LiveText account, which can be purchased at the University Book Center, is a one-time purchase that is comparable in price to the cost of a textbook. These accounts will last for a full year after graduation so that education majors can use their electronic LiveText portfolios in the job seeking process. For more information about LiveText, contact Dr. Kathy Angeletti, Assistant Dean (kangel@umd.edu).

Advising

The Office of Student Services provides academic advising for education majors regarding admission, orientation, registration, graduation, and certification. Advising is mandatory in the College of Education: Education majors must be advised prior to registration each semester.

Teacher candidates are required to complete an academic audit in the Office of Student Services upon admission to the professional teacher education degree program. Undergraduates are expected to complete their degree program in a timely manner and to adhere to program benchmarks. Information about program benchmarks and four-year plans is available on the Student Services website at http://www.education.umd.edu/studentinfo/undergraduate_info/index.html.

Departments and Centers

The College includes a number of centers that offer special resources and facilities to students, faculty, and the community, including the following:

Center for Children, Relationships, and Culture
Center for Educational Policy and Leadership
Center for Mathematics Education
Center for Young Children
Institute for Child Study
Institute for Exceptional Children and Youth
International Center for Transcultural Education
Maryland Institute for Minority Achievement and Urban Education
Maryland Assessment Research Center for Education Success
Reading Center
Science Teaching Center

Minors

The College of Education offers five minors:

1. The Minor in Secondary Education includes 15 credits and provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. For more information about the secondary education minor, contact the program advisor, 1204 Benjamin Building.

2. The Minor in Second Language Education (TESOL) provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepares them for roles as teachers of English as a foreign language in international settings. It includes coursework from Curriculum and Instruction and from Human Development. For more information about the TESOL minor, contact the program advisor, educminor@umd.edu1204 Benjamin Building.

3. The Minor in Special Education provides opportunities for undergraduates to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For individuals who are interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available. The minor is under review. For more information about the 18-credit special education minor, contact the Office of Student Services, 1204 Benjamin Building. NOTE: **This program is currently under review.**

4. The Minor in Human Development provides a rigorous foundation in human development for undergraduates who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning, and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory

settings. Contact the Office of Student Services, 1204 Benjamin, educminors@umd.edu, or 301-405-2364, for more information or to arrange an advising appointment.

5. The EDCP Minor in Leadership Studies promotes college student leadership development by educating undergraduate students *for* and *about* leadership in a complex world. The goal of the minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. Faculty and students in the minor are dedicated to advancing the field of leadership studies by building upon and critically evaluating existing theoretical, research-based, and practical knowledge. For the list of approved courses and additional details regarding the EDCP Minor in Leadership Studies, please visit http://umddepartments.orgsync.com/org/leadershipstudies/.

Specialized Academic Programs

Secondary Education Program Options: The College of Education has multiple pathways for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

The **Certificate Program** requires completion of an academic major - including coursework specific to meet certification standards in the certificate area - and a bachelor's degree in an approved academic content area, plus the completion of a certificate program in secondary education to meet requirements in UM's approved program for MSDE certification. Selected coursework from the Minor in Secondary Education may be taken prior to admission to the Certificate Program option. *(The Certificate Program is currently under review. For additional information, contact the Office of Student Services, 1204 Benjamin.)*

The **Five-Year Integrated Master's with Certification Program** for content majors entering the junior or senior year, is for talented undergraduates with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. Candidates who are admitted to the program complete their baccalaureate degrees with a major in the relevant content area and a minimum of 12 credits in professional education studies related to teacher certification requirements. In their fifth year, they enroll in a full-year internship and complete graduate-level professional studies that make them eligible for teacher certification and the master's of education degree.

The **Mathematics Education** and **Science Education** programs are currently under review. For more information, please visit the **Terrapin Teachers** website http://terrapinteachers.umd.edu/

For detailed information about these secondary education program options, contact the Office of Student Services, 1204 Benjamin Building.

College Honors Program

Undergraduate teacher education majors meeting certain scholastic requirements may participate in the College of Education Honors Program. The objective of this program is to examine the field of education at levels of depth and breadth that go beyond that provided by any one teacher preparation sequence. The program consists of three components: group, cross-disciplinary, and individual study. The Honors Program represents an excellent springboard for teacher candidates with aspirations to go on to graduate school. For further information contact the College of Education Office of Student Services (1204 Benjamin). NOTE: **Program is currently under review.**

Approved Student Societies and Professional Organizations

The College sponsors chapters of Phi Delta Kappa; the Teacher Education Association of Maryland Students (TEAMS), a state/national education association; the College of Education Student Assembly, a student governance organization; and Kappa Delta Pi, an honor society in education. The Mary McLeod Bethune Society is a pre-professional organization concerned with minority issues and education. Student Educators of Young Children (SEYC) is a student organization sponsored by the Maryland Association for the Education of Young Children (MDAEYC), an affiliate of the National Association for the Education of Young Children (NAEYC). A chapter of the Council for Exceptional Children is open to teacher candidates in Special Education.

The Plan of Organization for the College of Education calls for undergraduate student representation on both the College of Education Assembly and College Senate. These organizations assume a critical role in policy development for the College of Education. The Assembly meets at least once a year during the fall semester for its annual meeting. Senate meetings typically occur once a month during the fall and spring semesters. Nine full-time undergraduates are elected as voting members of the College Assembly. The chair of the Undergraduate Student Assembly also serves as a voting member of the College of Education Assembly. Of the nine Assembly members, one is elected to serve as a delegate to the College of Education Senate. For further information about the College Assembly or Senate, contact the Office of Student Services, Room 1204 Benjamin.

In several departments there are informal organizations of students. Students should contact the individual departments or, in the case of College-wide groups, the Student Services office, for additional information regarding these organizations.

Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information (including details regarding TEACH grants), visit: www.financialaid.umd.edu.

In addition, contributions from the College of Education Alumni and Friends have made it possible to award a number of $1,000 scholarships to deserving teacher education candidates each academic year. These awards are based on the following criteria:

- academic performance
- financial need
- leadership and contributions to the field of education or commitment to potential leadership in the field of education
- encouragement of a diverse and multicultural community

Scholarship applications may be obtained in the Office of Student Services (1204 Benjamin). Applications also are available on-line:
http://www.education.umd.edu/studentinfo/scholarships.html

For more information about the College of Education Scholarships, including deadlines and application materials, contact the Office of Student Services (1204 Benjamin).

Awards

Maryland Teachers of Promise Program

Each year, the College identifies five to seven of its most promising gifted pre-service educators, who are seniors and who plan to teach in the state of Maryland. These individuals become part of a select group of outstanding pre-service and veteran teachers participating in a mentor-protégé program and educational Institute. As part of the program, each teacher candidate is paired with an award-winning veteran teacher mentor (Teacher of the Year, Milken National Educator, Blue Ribbon School Master Teacher, etc.), who provides guidance and support during the transition period into teaching. For more information about this program, contact Dr. Kathy Angeletti, Assistant Dean (kangel@umd.edu).

Student Engagement and Service Units

Student Services Office
1204 Benjamin Building, 301-405-2344
www.education.umd.edu/studentinfo

The Student Services Office provides academic advising for education majors regarding admission, orientation, registration, graduation, and certification. Information about the Praxis assessments and the College of Education Scholarships also is available in Student Services.

Educational Technology Services
0234 Benjamin Building, 301-405-3611

Educational Technology Services helps the College advance the effective use of technology in support of student learning. The Center provides a range of technology and media resources and services to faculty and students. The Center also offers professional development courses, technology planning, consulting assistance, and other outreach services to educators and policy makers throughout the state and region. A number of research, development, and demonstration activities in educational technology also are conducted through the Center's grants and contracts with federal, state, and private funding sources.

Career Center
3100 Hornbake Library; 301-314-7225
www.CareerCenter.umd.edu

The Employment Registration Program (TERP) includes job listings in private and public schools and institutions of higher learning, on-campus interviews with in-state and out-of-state school systems, and resume referral to employers interested in hiring education majors. Information and applications from school systems throughout the country, job search publications, and various employment directories also are available in the Career Center.

A. JAMES CLARK SCHOOL OF ENGINEERING (ENGR)

3110 Jeong H. Kim Engineering Building, 301-405-8335
www.eng.umd.edu
Dean: Darryll Pines
Associate Dean(s): William Fourney, Peter Kofinas, Robert Briber

The University of Maryland's A. James Clark School of Engineering is a premier program, ranked among the top 20 in the world. Located just a few miles from Washington, D.C., the Clark School is at the center of a constellation of high-tech companies and federal laboratories, offering students access to unique opportunities to prepare for and launch rewarding careers.

We combine rigorous classroom learning with opportunities for hands-on educational experiences, including the autonomous vehicle project in freshman year and capstone courses in junior and senior years; participation in numerous national and international engineering competitions in which the school is consistently successful; a vibrant entrepreneurial ecosystem; and extensive internship opportunities.

We offer students the chance to engage in cutting-edge research, whether in the many labs run by prominent faculty members in state-of-the-art facilities, or with potential employers in nearby federal research labs and corporations. Research enables students to dig deeper into their majors or explore new areas of possible interest.

With one of the nation's most active chapters of Engineers Without Borders, Clark School students can apply their skills and energies in the service of less fortunate people all around the world. Service options closer to home are available through the many student societies, alternative spring breaks and targeted initiatives started by fellow students.

It is this range of opportunities that makes the Clark School so valuable to talented, ambitious students who want a deeper university experience. We encourage you to explore further by visiting www.eng.umd.edu.

Admission Requirements

Freshmen Admission

Direct Admissions Requirements

Admission to the A. James Clark School of Engineering is limited. Freshmen applicants are reviewed and will be admitted directly on a competitive basis. Evaluation is based on high school grades, standardized test scores, activities, leadership and demonstrations of potential to succeed. An applicant may apply to any of the majors offered within the School. An applicant also has the option of entering as an Undecided Engineering major and will typically choose a degree program in the first year.

Directly admitted freshmen will be subject to an academic review at the end of the semester in which they attain 45 University of Maryland credits. In order to successfully complete the review, students must have an overall GPA of at least 2.0 and have completed ENES100, Fundamental Studies English, and the following sequence of Gateway requirements: MATH141, PHYS161, and either CHEM 135 or CHEM 271 or CHEM134 with a minimum grade of "C-". Students who take CHEM134 must also have completed CHEM131 with a minimum grade of "C-".

Only one repeat of a single Gateway course, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of W (withdrawn) is earned is counted as an attempt. Students who fail to meet these requirements by the semester in which they attain 45 University of Maryland credits may be dismissed from the Clark School and may not reapply. Dismissed students may appeal in writing directly to the Associate Dean for Undergraduate Affairs in the Clark School.

Transfer Admission

Direct Admissions Requirements

Internal and external transfer students will be directly admitted to the Clark School if they meet the following Gateway requirements: MATH141 with a "B-", PHYS161 with a "B-", either CHEM135 or CHEM271 or CHEM134 with a minimum grade of "C-" (Students who take CHEM134 must also have completed CHEM131 with a minimum grade of "C-"). Students must also have a minimum cumulative GPA of 3.0 in all college-level coursework, and have not previously been admitted to the Clark School of Engineering. **Students interested in transferring to the Department of Bioengineering must also complete BIOE120 with a minimum grade of "B-" or better for admission.** Only one repeat of a single Gateway course, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of W (withdrawn) is earned is counted

as an attempt. Students should wait until all gateway requirements are complete before applying for admission to the School.

Appeal Process

All students denied admission to the Clark School may appeal the decision in writing directly to the Associate Dean of Undergraduate Affairs in the Clark School. External transfer students who are denied admission to the University may appeal to the Office of Undergraduate Admissions of the University.

Maryland Community College Transfer Students

Students who complete an Associate of Science degree at a Maryland community college may be prepared to enter into the sophomore or junior year in engineering at the University of Maryland if they have completed the required engineering coursework. To ensure that you are enrolling in the correct courses to transfer, please consult the Engineering four-year plans and the Transfer Credit Services website. There may be some courses which are not offered at Maryland community colleges. Students should investigate the feasibility of completing these courses during the summer session at the University of Maryland before starting their junior course work in the fall semester. A maximum of one-half of the degree credits (approximately 60 semester hours) may be transferred from a two-year community college program.

Undergraduate Degree Requirements/Degree Options

Structure of Engineering Curricula: Courses in the normal curriculum or program and prescribed credit hours leading to the degree of Bachelor of Science (with curriculum designation) are outlined in the sections describing each department in the Clark School of Engineering. No student may modify the prescribed number of hours without special permission from the Dean of the School. The courses in each curriculum may be classified in the following categories:

1. Courses in the General Education Program,

2. Courses in mathematics, chemistry, and physics.

3. Related technical courses, engineering sciences and other courses approved for one curriculum but offered by another department.

4. Courses in the major department. A student should obtain written approval for any substitution of courses from the department chair and the Dean of the School. The courses in each engineering curriculum, as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see the Academic Regulations in Chapter 4). Moreover, the Clark School of Engineering establishes policies which supplement university regulations.

School Regulations

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.

2. Required courses in mathematics, physics, and chemistry have highest priority. It is strongly recommended that every engineering student register for mathematics and chemistry or mathematics and physics each semester until the student has fully satisfied requirements of the Clark School of Engineering in these subjects.

3. To be eligible for a bachelor's degree in the Clark School of Engineering, a student must have an overall cumulative grade point average of at least a 2.0, a "C-" or better in all engineering degree requirements including (but not limited to): BIOE, BCHM, BSCI, CHBE, CMSC, ENXX, ENSP and GEOL. Students matriculating to UM in the fall of 2012 or after must also have a 2.0 cumulative GPA in their major courses, minor courses and classes used to satisfy certificate programs.

4. In addition to the requirement for a "C-" or better in all engineering, CMSC, and degree requirements, all students who begin college-level work, either at the University of Maryland or any other institution in the Spring 2005 semester or later, must receive a grade of "C-" or higher in all technical courses (e.g. mathematics, physics, chemistry, etc.) used to satisfy major requirements.

5. A course taken at UMD in which a grade has been earned may not be repeated via transfer from another institution.

6. Students in the Clark School of Engineering must have a minimum 2.0 University of Maryland GPA to enroll in courses at another institution.

7. All students are required to complete a number of general education courses and must follow the university's requirements regarding completion of the General Education Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students who began college-level work (either at the University of Maryland or at other institutions) during the Fall 1989 semester or later are required to complete a Professional Writing course, ENGL393, regardless of their performance in freshman English classes.

8. All degree programs in the Clark School of Engineering require a minimum of 120 credits plus satisfaction of all department, School, and University general education program requirements (Aerospace Engineering majors are required to complete a minimum of 124 credits). Students should be aware that for all currently existing engineering programs the total number of credits necessary for the degree exceeds 120 by some number that depends on the specific major.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs can be completed in four years. These curricula are rigorous and relatively difficult. Studies have shown that only 61% of students complete their degree in four years. It is quite feasible for a student to stretch out any curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek competent advising in order to ensure that courses are taken in the proper sequence.

All students are urged to complete a senior audit using uAchieve and to review the audit with their departmental advisor at least two semesters prior to graduation. The purpose of the senior audit is to discuss academic progress and confirm that graduation requirements are being completed.

Departments and Degrees

The Clark School of Engineering consists of eight academic departments and offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Bioengineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, and Mechanical Engineering. All of the above programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Freshmen-Sophomore Years

The freshman and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. During the first two years, students are introduced to the concepts of engineering design and work in multidisciplinary teams. The School course requirements for the freshman and sophomore years are similar for all students, regardless of their intended academic program, thus affording the student maximum flexibility in choosing a specific engineering specialization.

Engineering Sciences

Engineering Science courses represent a common core of basic material offered to students of several different departments. All freshman and sophomore students of engineering are required to take ENES100. Other ENES courses, 102, 220, 221, and 232 are specified by the different departments. The responsibility for teaching the engineering science courses is shared among faculty from different departments by means of the Keystone Program. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations.

Freshman Curriculum

See individual department requirements in the Departments and Majors section of this site. For entering freshmen, the math placement is determined solely by performance on the University

math placement exam and not on the Math SAT score. Placement in MATH115 or lower will delay by a semester eligibility to take certain engineering courses.

Sophomore Year

No later than the sophomore year, a student should select an academic degree program (Aerospace, Bioengineering, Chemical, Civil, Computer, Electrical, Fire Protection, Mechanical, or Materials Science and Engineering) and this department assumes the responsibility for the student's academic guidance, counseling, and program planning from that point until the completion of the degree requirements of that program as well as the School. For the specific requirements, see the curriculum listing in each engineering department.

Advising

Advising is mandatory prior to registration each semester for all students in the Clark School. Each engineering department has a representative who advises students in their respective discipline. Undecided engineering students are advised by the Office of Undergraduate Advising & Academic Support until they have declared a major. Refer to the individual program for additional advising information. During orientation to the University, all students will receive advising from the Office of Undergraduate Advising & Academic Support in collaboration with departmental advising representatives.

Minors

Computer Engineering: 18 credits. The minor in Computer Engineering is a program offered by the Department of Electrical and Computer Engineering. The minor will introduce students to core hardware concepts, such as computer architecture, digital logic design, and digital circuit design, as well as core software concepts, such as algorithms, discrete mathematics, and programming. Students will also learn how hardware and software interact at the interface. With a minor in computer engineering, students will not only receive preparation for entry into the computer industry, but they will also become more effective at applying computing in their primary field of study. For more information, please visit the minor website at www.ece.umd.edu/undergrad/ce-minor

Construction Project Management: 15 credits. A minor in Construction Project Management will prepare students for employment in one of the many careers related to the built environment, such as project management, architectural engineering, design and commercial construction. Students will learn how to manage multiple phases of operation and management in the construction process including building information modeling, cost estimating, project scheduling, construction financing and planning. The Construction Project Management minor is ideal for students in Architecture, Engineering and similar fields. This minor is designed to give students a competitive advantage when applying for a job in the construction industry. This minor is only available to undergraduate students in the Clark School of Engineering and the School of Architecture, Planning and Preservation who have earned at least 60 credit hours (Junior standing) and have a UMD grade point average of 3.0 or higher. For more information on this minor, students in the School of Engineering should contact Dr. Qingbin Cui at

cui@umd.edu, and students in the School of Architecture should contact Heidi Bulich at hbulich@umd.edu

Engineering Leadership Development: 16 credits. The goal of the minor in engineering leadership development is to prepare engineering students for leadership roles in industry and to develop the skills most attractive to employers. The minor will complement the technical skills and knowledge students acquire in their engineering coursework to better prepare them to engage in leadership within industry. Students may earn the minor and a notation on their official transcript by completing coursework which focuses on communication, leadership theory, global awareness, project management, understanding oneself, and working effectively with others. Contact the minor advisor, Ramsey Jabaji (rjabaji@umd.edu), or visit the web at www.ilp.umd.edu for more information.

International Engineering: Minimum of 15 credits. In addition to a strong engineering background, there is a need for engineers with cross-cultural experience and foreign language abilities. Students may earn the minor by completing a course in International Business Cultures for Engineering and Technology, a Global Studies Minor Program signature course, and additional courses in language, culture studies, or internationally related studies, plus an engineering experience abroad. Contact the minor advisor, Jane Fines (jfines@umd.edu), or visit the web at www.ilp.umd.edu for more information. Students who fulfill minor requirements will receive a notation on their official transcript.

Nanoscience and Technology: 15 credits. Continued growth in the field of nanometer scale science and technology (NS&T) has led in the past several years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology is intended to prepare participating students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at the University of Maryland, in departments distributed among two schools: The Clark School of Engineering, and the College of Computer, Mathematics and Natural Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. Visit the website http:www.mse.ume.edu/undergraduate/nanominor for more information.

Nuclear Engineering: 15 credits. The need for engineers with knowledge of nuclear engineering topics will grow significantly in the coming years, with new nuclear plants being planned, existing plants continuing operation, and increasing industrial and medical uses of radiation sources. The minor in Nuclear Engineering provides an engineering student with an understanding of nuclear engineering and its application to many different fields, such as power generation, reactor operation, and industrial uses. Students in the minor will learn the fundamentals of nuclear reactor engineering, radiation interactions and measurement, power plant design concepts, and reactor safety and risk assessment. The minor is open to any student in the Clark School of Engineering. Contact Dr. G.A. Pertmer (pertmer@umd.edu) for further information. Students who fulfill minor requirements will receive a notation on their official transcript.

Project Management: 15 credits. A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript. Contact Dr. Qingbin Cui, Project Management Minor Advisor (cui@umd.edu) or visit the web site: http://pm.umd.edu/

Technology Entrepreneurship: 15 credits. The Minor in Technology Entrepreneurship prepares students for launching successful technology ventures and bringing life-changing products and services to market. The minor develops the entrepreneurial mind-set and functional skillsets of students to improve their ability to create, launch, and manage technology ventures. Students earn the minor by completing coursework which focuses on entrepreneurial opportunity analysis, marketing high-technology products, strategies for managing innovation, and international entrepreneurship and innovation. For details and contact information, visit http://www.mtech.umd.edu/educate/minor/

Living-Learning Programs

Flexus: The Dr. Marilyn Berman Pollans Women in Engineering Living & Learning Community
Women in Engineering Program
0110 Easton Hall/1131 Glenn L. Martin Hall
301-405-6610/301-405-3931
Director: Paige Smith

The Women in Engineering Living & Learning Community (WIE LLC) is open to any first-year female engineering student with an interest in promoting gender diversity in the field of engineering. Students who complete the first year of the program are invited to participate in a second year. The program seeks to promote community among first and second year engineering students committed to gender diversity in the field and to provide encouragement and support for academic and professional success by:

1. introducing students to women mentors and role models;
2. offering professional and personal development opportunities;
3. helping students make connections with peers in engineering and
4. reinforcing important technical skills needed to succeed in engineering.

The components of this living and learning community include a one credit seminar course, taking the first math, science and engineering courses together, residential housing on a common floor in Easton Hall and resources provided in the residence hall. Participants will also have the opportunity to work closely with Virtus: a Living and Learning Community for Success in Engineering

Virtus: A Living and Learning Community for Success in Engineering
Successful Engineering Education and Development Support Program

0110 Easton Hall/1131 Glenn L. Martin Hall
301-405-6610/301-405-3931
Director: Paige Smith

Virtus provides first-year male engineering students access to an engineering based living and learning environment. The primary goal of Virtus is to promote community among first and second year engineering students and to provide support for academic and professional success. Living in Easton Hall, participants will be introduced to a diverse range of mentors and role models and offered professional and personal development opportunities. In addition to a common residence floor, the components of this living and learning community include a one credit seminar, taking the first math, science and engineering courses together, and resources provided in the residence hall. Participants also have the opportunity to make connections with peers in engineering and work closely with Flexus: the Dr. Marilyn Berman Pollans' Women in Engineering Living and Learning Community. Virtus is funded through the National Science Foundation's Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP, Award# 0969232).

College Park Scholars - Science, Technology, and Society
1125 Cumberland Hall
301-405-7219; https://scholars.umd.edu/programs/sts
Director: David Tomblin

Co-sponsored by the Clark School of Engineering, the Science, Technology and Society (STS) program is one of 12 living-learning programs offered by the College Park Scholars Program. This 2-year program for academically talented freshmen and sophomores welcomes all majors, who live together in Cambridge Hall. While building close relationships with program faculty, STS explores the influential social, ethical, and political relationships that drive research and innovation. The program delves into the challenges of living and innovating in a world where emerging science and technologies are becoming increasingly interconnected, pervasive, and powerful. The program's primary goal is to give students career development and analytical skills that help connect science and technology to broader social needs. STS pursues this goal through individual research projects, collaborative problem solving activities, user-centered design projects, and service-learning.

STS students participate in a number of field trips to further their understanding of the program themes and objectives. Sites include the National Institute of Standards and Technology, NASA Goddard Spaceflight Center, United States Patent and Trademark Office and the National Building Museum. Students also have the opportunity to engage in service actives related to the program such as volunteering for Maryland Robotics Day, Women In Engineering's annual DREAM Conference, Maryland Regional Science Bowl, the Science and Engineering Festival, and BitCamp.

STS features three rewarding practicum opportunities: 1) Robotics service-learning program, students explore innovative ways of encouraging STEM education in Prince Georges County schools; 2) Infrastructure and Society, students work with professional engineers on a service-

learning project that assesses the safety and viability of infrastructure; 3) Sustainability and Design: Work with real clients from local communities to design the implementation of sustainable technologies.

Specialized Academic Programs

Science, Technology and Society Certificate

1125 Cumberland Hall, 301-405-7219
https://scholars.umd.edu/program/sts
Director, David Tomblin, dtomblin@umd.edu

The undergraduate University Certificate program in Science, Technology, and Society (STS) enables students to learn about the dynamic, interactive and creative relationships among science, technology, and society. This 21-credit program helps structure a student's general education and elective requirements into a unifying theme. The end product of the program is a research project of the student's own choosing, which is developed under faculty mentorship. The STS University Certificate is especially helpful to students who are seeking jobs that require understanding policy decisions as they relate to scientific and engineering endeavors, those students hoping to seek a graduate degree that integrates science, technology, and policy, or students simply interested in developing a greater understanding of social issues related to science and technology.

STS is an interdisciplinary field that has been taught for more than 30 years at universities in the United States and Europe, notably in those with strong engineering and public policy programs. In recent years, STS University Certificate students have chosen to write their capstone term papers about timely topics, including the interactions among science, technology and society related to nanotechnology, fuel cell applications, physics research funding, climate change modeling, religious principles as a basis for climate action, integration of SONAR into underwater vehicles, nuclear power in developing countries, and interpersonal impacts of social networking.

Courses:

The STS program requires 9 credits of Lower Level (100-200) and 9 credits of Upper Level courses (300-400) and the STS Capstone (ENES 440, 3 credits). Students must obtain prior approval of the director before counting courses toward their individualized STS curriculum. Many of these credits may overlap with major and minor requirements. For guidance, see the website for a list of approved courses, and note that students may ask the director to approve a course not listed on the website.

Lower Level (100- and 200-level) Courses (9 credits):

Three courses that relate science to society, technology to society, or science to technology; one of the courses should be CPSS 225 (STS sophomore survey course)

Upper Level (300- and 400-level) Courses (12 credits):

These courses have an interdisciplinary orientation that demonstrates inter-relationships between science and society, between technology and society, or between science and technology. Students choose three courses and the fourth course is ENES440, the STS University Certificate capstone.

Joining the Program and Program Requirements:

Students interested in STS should contact the director to obtain advice and approval prior to enrolling in courses that fulfill the program. Students record their progress with the STS program office as they complete requirements, participate in a semi-annual advising meeting, and write a brief evaluation upon completing the program. Students must earn a minimum grade of "C-" in each course they wish to credit toward the STS University Certificate. A student's individual course of study may not exceed these maximums: 9 credits of courses applied to the student's major; 3 credits of Special or Selected Topics courses; 9 credits of courses taken outside UMCP; and 6 credits of courses with the AREC, ECON and GVPT prefixes. Once all requirements are met and the director affirms that the student has completed the program, the Registrar includes a notation of this University Certificate on the student's transcript.

College Honors Program

Students in the A. James Clark School of Engineering may participate in the University's Honors College, College Park Scholars, Quest, and/or departmental honors programs (see the individual department section for details).

Clark School Engineering Honors Program

The Clark School offers an Engineering Honors Program that provides eligible students the opportunity to pursue an enriched program of studies that will broaden their perspectives and increase the depth of their knowledge. Engineering students meeting all of the following criteria are eligible to apply:

1. Upper fourth of engineering juniors and seniors;

2. Junior standing or 60 applicable credits;

3. Completion of at least one semester at UMD.

The requirements for completing the program are as follows:

1. An Honors Research Project which often can be used as a technical elective, a written report, and an oral presentation to a faculty panel of the EHP;

2. Successful completion of both Engineering Honors Seminars (ENES480 and ENES481, one credit hour each);

3. Maintenance of a GPA to remain in the upper third of the class.

For more information see http://www.eng.umd.edu/current/honors-program.

Approved Student Societies and Professional Organizations

Professional Societies

Each of the engineering departments sponsors student chapters or student sections of a national engineering society. The student chapters sponsor a variety of activities including technical meetings, social gatherings, and School or University service projects. All students are strongly encouraged to join one or more of these chapters.

These organizations are: American Helicopter Society-Intl.; American Institute of Aeronautics and Astronautics; American Institute of Chemical Engineers; American Nuclear Society; American Society of Civil Engineers; American Society of Heating, Refrigeration, and Air Conditioning Engineering; American Society of Mechanical Engineers; ASM International; Black Engineers Society; BMES-UMD (Biomedical Engineering Society, UMD chapter); Engineers Without Borders; Institute of Electrical and Electronics Engineers; Material Advantage (American Ceramic Society, ASM International and TMS joint chapters); Mechanical Contracting Association (MCA); Society of Asian Engineers; Society of Automotive Engineers; Society of Fire Protection Engineers; Society of Hispanic Engineers; Society of Manufacturing Engineers; and Society of Women Engineers.

Honor Societies

The Clark School of Engineering and each of the engineering departments sponsor honors societies. Nominations or invitations for membership are usually extended to junior and senior students based on scholarship, service, and/or other selective criteria. Some of the honors organizations are branches of national societies; others are local groups: Tau Beta Pi (College Honorary); Alpha Eta Mu Beta (Biomedical Engineering); Alpha Nu Sigma (Nuclear Engineering); Alpha Sigma Mu (Materials Science and Engineering); Chi Epsilon (Civil Engineering); Eta Kappa Nu (Electrical and Computer Engineering); Omega Chi Epsilon (Chemical Engineering); Pi Tau Sigma (Mechanical Engineering); Salamander (Fire Protection Engineering); and Sigma Gamma Tau (Aerospace Engineering).

Financial Assistance

The Clark School offers scholarships to talented undergraduate engineering students. This is a competitive scholarship program with scholarships awarded for merit. Financial need and a variety of other factors may also be considered. New freshmen are automatically considered for most Clark School scholarships and are not required to apply for funding. Current and new transfer students must complete the online scholarship application by May 31st for best consideration. Visit the website www.ursp.umd.edu/scholarships/index.html for more information.

The Benjamin T. Rome Scholarship is a full-ride scholarship awarded to a new freshman student each year. The Rome Scholarship, in conjunction with other university scholarships, covers all expenses (tuition and fees, room and board) plus a book allowance and a stipend. The award is renewable for up to three additional years provided the recipient maintains good academic standing and makes progress toward an engineering degree.

The Herbert Rabin Scholarship is awarded to one or two entering freshman students each year based on merit. The Rabin Scholarship, in conjunction with other university scholarships, covers tuition and fees, and room and board. The award is renewable for three additional years provided the recipient is an undergraduate engineering student, maintains good academic standing and makes progress toward an engineering degree.

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

Research Units

Undergraduate Research Programs

Undergraduate research programs allow qualified undergraduate students to work with research laboratory directors in departments, thus giving students a chance for a unique experience in research and engineering design. Projects in engineering allow undergraduate students to do independent study under the guidance of faculty members in an area of mutual interest. For more information, contact the department or research center you are interested in performing research.

Student Engagement and Service Units

Office of Undergraduate Advising and Academic Support
1131 Glenn L. Martin Hall, 301-405-9973
Director: Jenna Bucci
www.eng.umd.edu/advising
engrhelp@umd.edu

The Office of Undergraduate Advising and Academic Support Office provides a broad variety of services to assist students during their collegiate careers. Individual advising may focus on a number of student related issues including: schedule planning, course selection, university policy interpretations, career choices, social and personal adjustments, as well as identification and support for students with specific academic concerns. The office also provides orientation to new students, certifies students for graduation, and is instrumental in helping students process administrative forms. The staff works closely with other campus offices to identify resources that address the various needs of our students.

Engineering Co-op and Career Services
1131 Glenn L. Martin Hall, 301-405-3863
Director: Heidi Sauber
CareerEngr@umd.edu, http://www.coop.eng.umd.edu/

The Engineering Co-op and Career Services Office assists students in finding cooperative education (co-op), internship, and post-graduation positions. Co-op and internship positions complement classroom learning and provide students with professional level experience, mentoring relationships, integration of theory and practice, confirmation of career choices, and financial compensation. To assist students in their job search we offer a wide variety of workshops on topics such as effective resumes, interview strategies, professionalism, career fair preparation, salary negotiation, and advanced job search techniques. We also provide one-on-one resume critiques, career advising appointments, mock interviews, job-search handouts, an e-newsletter, and a jobs database called *Careers4Engineers*. In addition, students have the opportunity to meet employers by participating in career fairs, networking events. employer information sessions, and special job search presentations conducted by engineering recruiters.

Office of International and Leadership Programs
1131 Glenn L. Martin Hall, 301-405-3857
Director: Jane F. Fines
www.ilp.umd.edu

The Office of International and Leadership Programs is responsible for developing international and leadership opportunities for engineering students. Services include advising students studying abroad, advising students completing the minors in International Engineering and Engineering Leadership Development, developing faculty-led programs abroad, advising the Breakaway Program (alternative spring break service program), and leadership development programs for engineering students.

Undergraduate Recruitment
1131 Glenn L. Martin Hall, 301-405-0287
Director: Bruk Berhane
www.ursp.umd.edu

The Office of Undergraduate Recruitment and Scholarship Programs is responsible for outreach and new student recruitment activities in the A. James Clark School of Engineering. Services include undergraduate recruitment, meeting with prospective students, providing K-12 and community college outreach activities, and administering the Clark School's scholarship program for new students.

The Center for Minorities in Science and Engineering
1131 Glenn L. Martin Hall, 301-405-3878
Director: Rosemary L. Parker
www.cmse.umd.edu

The Center is dedicated to increasing the enrollment and graduation rates of African American, Hispanic, and Native American students majoring in engineering. The Center provides a complete package of services designed to assist students from pre-college through completion of the PhD. Services include academic advising, tutorial assistance, scholarship information, the BRIDGE Program, the BRIDGE to the Doctorate Fellowship, outreach programs, job information and support of student organizations.

Women in Engineering Program
1131 Glenn L. Martin Hall, 301-405-3931
Director: Paige E. Smith
www.wie.umd.edu

The Women in Engineering Program (WIE) Program is dedicated to increasing the enrollment, retention, and graduation rates of females in the School, as well as identifying and addressing this group's unique needs. The Program provides a comprehensive set of initiatives designed to encourage and assist women students to become successful professional engineers.

Services offered include research and teaching fellowships, information listserv, website, living and learning communities, first year peer mentoring program, workshops on careers, outreach programs, speakers, student advisory board, and support of women engineering organizations.

Engineering Information Technologies (EIT)
2125 J.M. Patterson Building
301-405-3885
Executive Director: Jim Zahniser zahniser@umd.edu
www.eit.umd.edu

Keeping pace with the latest developments in the area of information technologies worldwide, the Clark School of Engineering provides a state of-the-art computing environment that will be the standard for engineers in the years ahead. Faculty and students have access to computer workstations with a wide range of engineering software and technology enabled classrooms with the latest presentation capabilities. In addition, EIT provides access and support on the latest tools and services for online collaboration, presentation technologies, and infrastructure services.

Distance Education Technology and Services
2125 J.M. Patterson Bldg, 301-405-4907; Fax: 301-314-9639
Assistant Director: Marty Ronning, 301-405-4899
www.dets.umd.edu

Distance Education Technology and Services, DETS, provides distance education technology and support service to the A. James Clark School of Engineering and the UMCP campus. We serve over 1000 students per year by providing graduate and undergraduate courses in engineering and other related fields. In addition, we also provide technical, services to the campus such as video conferencing, video capturing, satellite services and more.

COLLEGE OF INFORMATION STUDIES, Maryland's iSchool (INFO)

0217 Hornbake Library, 301-405-2038
http://infosci.umd.edu/
infosci@umd.edu
Dean: Keith Marzullo
Associate Dean(s): Brian Butler; Susan Winter

Maryland's iSchool is a leader in shaping the future of information access and management, and is fully committed to creating an inclusive and equitable environment. We design new and leverage existing techniques and technologies to solve information challenges. We work with communities and institutions, including private and public archives, libraries, and information product startups. We prepare future information leaders, researchers, and both business and social entrepreneurs. Together, we turn information into power to unlock our full potential.

Special Advantages and Facilities

The College operates six research centers: the Human-Computer Interaction Lab (HCIL), the Information Policy and Access Center (iPAC), and the Center for Advanced Study of Communities and Information (CASCI), the Cloud Computing Center (CCC), the Trace Center, and the Digital Curation Innovation Center (DCIC).

iSchool faculty and doctoral students also participate in or have affiliations with the University of Maryland Institute for Advanced Computer Studies (UMIACS), the Maryland Institute for Technology in the Humanities (MITH), and the Computational Linguistics and Information Processing Laboratory (CLIP), as well as the Departments of Computer Science, English, and Sociology, the Robert H. Smith School of Business, and the College of Education.

Advising

Advising is mandatory for all Information Science (InfoSci) students. Each semester prior to registration, current InfoSci students are required to meet with the advisor to review courses taken and identify courses students plan to take. This review will ensure students are progressing through the major in a satisfactory manner. Be sure to schedule regular advising meetings and make sure you are on track to meet your academic and professional goals.

Departments and Centers

Students in the program may submit a request that courses from an outside college or department be counted towards their major electives. Students interested in doing so should contact their advisor for more information.

Minors

The iSchool does not currently offer a minor.

Financial Assistance

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs, and in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

Research Units

Trace Research & Development Center

Room 2117 Hornbake Bldg, South Wing, College Park, 301-405-2043
http://trace.umd.edu/
trace-info@umd.edu
Director: Dr. Gregg Vanderheiden

The Trace Center's purpose is to apply engineering, computer science, disability studies, public policy, and information science to prevent the barriers to, and capitalize on the opportunities presented by, current and emerging information and communication technologies. Our vision is of a world that is accessible and usable by people of all ages and all abilities – each experiencing ICT in a way they can understand and use. Founded in 1971, Trace has been a pioneer known for high-impact research and development, including access features implemented in computer operating systems, leadership in development of Web Content Accessibility Guidelines and many other accessibility standards, and techniques used to increase the accessibility of self-service kiosks in post offices, train stations, and airports. Trace is currently a leader in the development and large-scale deployment of a Global Public Inclusive Infrastructure that combines cloud computing, web, and platform services to make online information and services available for people facing accessibility barriers.

The Center for Advanced Study of Communities and Information (CASCI)

Hornbake Bldg, South Wing, College Park, 301-405-2033
https://casci.umd.edu/
jvitak@umd.edu
Director: Dr. Jessica Vitak

The Center for the Advanced Study of Communities and Information (CASCI) is a multidisciplinary research network, based at University of Maryland. CASCI exists to facilitate research and education that advances our understanding of the technology, information, and organization approaches needed to realize the potential of 21st century communities to support learning, facilitate innovation, transform science and scholarship, promote economic development, and enhance individual and civic well-being.

Digital Curation Innovation Center (DCIC)

4110 Hornbake Bldg, South Wing, College Park, 301-405-2033
http://dcic.umd.edu/
dcic.ischool@umd.edu
Director: Dr. Richard Marciano, Associate Director: Dr. Michael Kurtz

The mission of DCIC is to lead research and education in digital curation and foster interdisciplinary partnerships using Big Records and archival analytics through public / industry / government partnerships. DCIC sponsors interdisciplinary projects that explore the integration of archival research data, user-contributed data, and technology to generate new forms of analysis and historical research.

The Human-Computer Interaction Lab (HCIL)

2117 Hornbake Bldg, South Wing, College Park, 301-405-2769
http://hcil.umd.edu/
hcil-info@cs.umd.edu
Director: Niklas Elmqvist

The Human-Computer Interaction lab transforms the experience people have with new technologies. From understanding user needs to developing and evaluating the technologies that support users' needs, the lab's faculty, staff, and students have been leading the way in HCI research and teaching for over 30 years. We believe it is critical to understand how the needs and dreams of people can be reflected in future technologies. To this end, the HCIL develops advanced user interfaces and design methodology. Our primary activities include collaborative research, publication and the sponsorship of seminars and brown bag talks, workshops and an annual symposium. The HCIL, though referred to as a lab, is actually a research center that is jointly administered by the iSchool and UMIACS, and has multiple labs, faculty, and students associated with it.

The Information Policy and Access Center (IPAC)

4121 Hornbake Bldg, South Wing, College Park, 301-405-9445
ipac.umd.edu
pjaeger@umd.edu
Co-Directors: Dr. John Bertot & Dr. Paul Jaeger

The Information Policy & Access Center (iPAC) is a response to the pressing need for research on the processes, practices, policies, and social issues that govern access to information in our increasingly digital information society. We at iPAC are committed to studying what policies and/or technologies lead to equitable and inclusive information access, a digitally-ready population, an informed and engaged public, access to Internet-enabled resources and technologies, or preservation of the cultural record, among key examples.

Computational Linguistics and Information Processing (CLIP)

301-405-6722
https://wiki.umiacs.umd.edu/clip/index.php
Director: Dr. Hal Daumé III

The CLIP laboratory at Maryland creates and evaluates systems that allow computers to effectively and efficiently use human language - together with large-scale information networks - to perform tasks such as search, translation, summarization and ontological reasoning. It is a part of the broader language science initiative at Maryland and of the University of Maryland Institute for Advanced Computer Studies (UMIACS).

Maryland Institute for Technology in the Humanities (MITH)

0301 Hornbake Library, College Park, 301-405-8927
mith.umd.edu/
mith@umd.edu
Director: Dr. Neil Fraistat

The Maryland Institute for Technology in the Humanities (MITH) is a leading digital humanities center that pursues disciplinary innovation and institutional transformation through applied research, public programming, and educational opportunities. Jointly supported by the University of Maryland, College of Arts and Humanities and the University of Maryland Libraries, MITH engages in collaborative, interdisciplinary work at the intersection of technology and humanistic inquiry. MITH specializes in text and image analytics for cultural heritage collections, data curation, digital preservation, linked data applications, and data publishing.

THE PHILIP MERRILL COLLEGE OF JOURNALISM (JOUR)

1100 Knight Hall, 301-405-2399
www.merrill.umd.edu
Dean: Lucy Dalglish
Associate Dean(s): Rafael Lorente, Olive Reid
Assistant Dean(s): Lele Ashworth, Vanessa Nichols-Holmes

Professors: M. Feldstein, K. Klose, S. Moeller, S. Oates, D. Priest, L. Steiner, C. Stepp
Associate Professors: I. Chinoy, C. Hanson, D. Nelson, R. Yaros
Assistant Professors: K. Chadha, N. Diakopoulos
Lecturers: J. Carroll, C. Clayton, J. Davidsburg, K. Denny, A. Flynn, C. Harvey, S. Katcef, S. Mussenden, B. Swain
Affiliate Professors: K. Blackistone (Prof of Practice), G. Solomon (Prof Of Practice)
Research Scientist: J. Stark
Professors Emeriti: M. Beasley, J. Blumler, J. Franklin, P. Geraci, D. Gomery, R. Hiebert, L. Martin, K. McAdams (Assoc Prof Emerita), J. Newhagen (Assoc Prof Emeritus), E. Roberts, C. Rogers (Prof of Practice Emerita)
Visiting Faculty: S. Banisky, C. Ford, L. Walker

The Major

The Philip Merrill College of Journalism prepares students for careers in newspapers, magazines, TV news, newsletters and online journalism outlets. The undergraduate journalism program culminates in a B.A. degree in journalism.

The College is fully accredited by the Accrediting Council on Education in Journalism and Mass Communications (ACEJMC).

Students learn in college programs such as Capital News Service, a daily wire service in College Park, Washington, D.C., and Annapolis and UMTV, a cable station operated by the college.

Students majoring in journalism take approximately one-third (42-45 credits) of their total coursework in the Philip Merrill College of Journalism. Journalism courses are designed to provide students with a working knowledge of the tools and concepts they will need to perform as top-flight professional communicators. Courses offered by this department may be found under the following acronym: JOUR.

The remaining approximately two-thirds (77-80 credits) of undergraduate coursework consists of a variety of other subjects such as history, economics, government, sociology and psychology. This exposure acquaints students with fundamental problems and issues they will encounter in their careers. Within these credits, journalism students must choose a "Concentration" (a core of advanced work in a substantive field) to establish competency in a specialized area of knowledge they will be able to use as professionals.

Program Objectives

About the College

The Philip Merrill College of Journalism is widely considered one of the best journalism programs in the nation, blending a mix of prize-winning journalists, communication scholars and nationally recognized professional programs. The school's mission is simple: to produce the best possible journalists for leading newspapers, magazines, TV, radio and online news outlets. Recent graduates are editors, reporters and producers at The New York Times, The Washington Post, CBS, Los Angeles Times, CNN and many of the nation's other top news organizations.

Located less than 10 miles from the news capital of Washington, students participate in internships during the academic year at The Washington Post, The (Baltimore) Sun, CNN, and a wide array of Washington news bureaus. In the summer, students intern at top news organizations around the country. Broadcast news students produce and anchor a 30-minute nightly news show that reaches more than 400,000 households in suburban Washington on the College-operated UMTV station, and advanced students enroll in Capital News Service, an intensive full-time reporting program in Washington, Annapolis and College Park. Students also participate in some of the school's professional programs.

The Vision

The Philip Merrill College of Journalism is shaping the future of news and media. As the top journalism school in the Washington, D.C. region and a global leader in journalism education, the College is committed to promoting a strong and independent free press.

- Through its faculty and curriculum, the Merrill College champions the fundamental journalistic values of accuracy, accountability, and fairness, and is a trailblazer in using digital and multimedia technologies in dynamic storytelling.
- It prepares its undergraduate students for success in today's exciting and innovative journalism landscape and gives its graduate students the skills and confidence to rise to the top of today's demanding news and media-dependent professions.

The Mission
The college educates students at the undergraduate, master's, and doctoral levels within a liberal arts context, preparing them for careers in journalism and related fields, as well as careers in academic research and teaching.

- The College works to elevate professional and ethical standards of practice, as well as advocates for increased public knowledge and involvement in democratic processes through dissemination of news.
- The mission of the College is to improve the production, delivery, and access to news, as well as to enhance the understanding of journalism's political, cultural, and social roles in the United States and around the globe.

Our undergraduate mission is an uncompromising dedication to the principles of the journalism profession, with training in evolving types of news gathering and delivery.

Our professional master's program provides a post-graduate education to those with a host of undergraduate degrees seeking to enter the field and intensive specialized training for mid-career journalists with a particular focus on investigative, sports, security, and computational journalism.

Program Learning Outcomes

1. Demonstrate the ability to research, write, report and edit relevant news stories acceptable by a professional news outlet.
2. Understand the history of journalism, its relationship with diverse groups in society and its historic special role in a democratic society.
3. Understand the ethical guidelines and practices that govern the profession and the legal implications and considerations that inform the profession.
4. Demonstrate the ability to apply tools, concepts and technology appropriate for the profession.
5. Conduct research and evaluate information by methods appropriate to the profession.
6. Apply basic numerical and statistical concepts appropriate for the profession.

7. Demonstrate knowledge of grammar, spelling, punctuation and syntax and an ability to apply Associated Press style to news stories in a manner acceptable to professional news outlets.

Special Advantages and Facilities

The Merrill College is home to many unique programs and opportunities available to undergraduate students:

UMTV: Broadcast journalism students study and learn at UMTV, the college-owned cable TV station that houses state-of-the-art equipment, including DVCPro, Avid and ENPS systems used in the field today. Students begin their broadcast education from their first semester at the College, volunteering as crew members for programs produced under the guidance of renowned broadcast faculty members.

Capital News Service: The College's Capital News Service operates news-editorial and multi-platform bureaus in College Park, Washington, D.C., and Annapolis, and a daily television newscast. CNS provides students with real-life reporting experiences covering a beat, developing sources, generating story ideas and writing on deadline under the supervision of a faculty editor.

Real-World Experience: Students take their education out of the classroom and into the real world. Using internships, student media and in-class reporting, our students don't just learn why, but how. The college is located just outside Washington, D.C., the country's seventh largest media market.

Top-Notch Faculty: The Merrill College is home to internationally renowned journalists and media scholars. Courses are also taught by working journalists who serve as adjunct professors.

Access to Centers of Journalism Study: The Merrill College is home to several centers for journalism study and professional development. Undergraduates have opportunities to interact with these programs.

Technology for the Real World: Students use the same technologies used by professional journalists and media specialists. From the latest in non-linear editing systems, to updated technologies for digital art and pagination, every undergraduate will have access to the software used by professionals in TV/radio production, visual journalism, online news and media communication.

Admission Requirements

Journalism is a Limited Enrollment Program (LEP). See the Admissions section in Chapter 1 for general LEP admission policies.

Freshman Admission and the 45-Credit Review

First-time entering freshmen will gain admission to the Philip Merrill College of Journalism directly from high school on an available basis. Early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Journalism is an appropriate area for their interests and abilities. Academic and career advising is provided to journalism students throughout their academic career by qualified academic counselors and the College's faculty.

Freshmen who are admitted directly to Journalism will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) The two, first-year Fundamental Studies courses: ENGL101 and mathematics; (2) JOUR201 with a grade of "C-" or higher (JOUR181, ENGL101 AND JOUR200 are prerequisites for JOUR201); and (3) a minimum cumulative GPA of 2.0. Students must prove grammar skills competency through attainment of a minimum of a "C-" in JOUR181 or an 80 or higher on the grammar competency exam offered in JOUR181. Students who do not meet these requirements will not be allowed to continue in the LEP and will be required to select another major. In addition freshmen are expected to complete JOUR200 by the end of their first year.

Transfer Admission

These requirements apply to new transfer students to the University as well as on-campus students.

Note: No more than 12 transfer credits of communications courses from an accredited journalism program may be approved by the College to be applied toward the degree. Transfer students who wish to receive credit for JOUR201 based on work done in a non-accredited journalism program must pass a proficiency exam.

In order to be admitted to Journalism, transfer students will be required to meet the following set of gateway requirements: (1) The two, first-year Fundamental Studies courses: ENGL101 and mathematics; (2) JOUR201 with a grade of "C-" or higher (JOUR181, ENGL101 and JOUR200 are prerequisites for JOUR201); and (3) attainment of a 2.8 GPA for all college-level work attempted.

Appeals

Students who are unsuccessful in gaining admission to Journalism at the freshman or transfer level, and believe they have extenuating or special circumstances that should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision.

Students admitted to Journalism as freshmen that do not pass the 45-credit review but believe they have special circumstances that should be considered, may appeal directly to the College.

For further information, contact the College's Student Services office at 301-405-2399.

Requirements for the Major

Effective for students matriculating Fall 2015 or later. (Student matriculating before Fall 2015 should contact an advisor about requirements).

Students are required to earn a minimum of 122 credits. Accredited journalism programs require majors to complete successfully approximately two-thirds of their coursework in areas other than journalism and communication. The Philip Merrill College of Journalism at the University of Maryland adheres to this nationwide policy. In practical terms, this means that of the 122 minimum credits required for graduation, a journalism student must take 42 credits (and may take up to 45) in journalism (numbered 100 or above). Of the remaining 77-80 credits, a minimum of 65 must be earned in liberal-arts designated courses.

The Philip Merrill College of Journalism stipulates that 57 of the total credits must be taken in upper-level courses (courses numbered 300-499).

Required courses for all journalism majors, whether primary or secondary major:

I. Journalism requirements outside the College

Students must complete the following liberal arts coursework complementing the university's general education requirements. For the university's general education requirements, consult the General Education program in the current Undergraduate Catalog.

- Abstract thinking skills requirement (9 credits)
    1. One three-credit statistics course from the following list:
       BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GVPT422, HLTH300, JOUR405, PSYC200, SOCY201, STAT400 or a more advanced statistics course.
    2. A minimum of six credits through one or a combination of the following options. Should a student choose to combine the options, at least one language course must be at the intermediate level:
        - Language: up to two courses with at least one course at the intermediate level and no more than one course at the introductory level. (High school equivalency does not satisfy this requirement.)
        - Math/Statistics/Computer Science: up to two courses
            - Any mathematics (MATH) course numbered 107 or higher.
            - Any computer science (CMSC) course numbered 102 or higher (at least three credits).
- Public Speaking: one course from COMM100, 107, 200, or 230.
- History: one course from HIST200 or 201.
- Behavioral or Social Science: one course from ANTH260; PSYC100 or 221; SOCY100 or 105.
- Economics: one course from ECON200 or 201.
- Government and Politics: GVPT170.

- Supporting Area: Four upper-level (numbered 300 or higher) courses for a minimum of 12 credits in a supporting field (cannot be in Communication). Upper Level Electives: Four additional upper-level (numbered 300 or higher) courses for a minimum of 12 credits (cannot be in Communication).

II. Journalism course requirements:

- JOUR200: Journalism History Roles and Structures (3 credits)
- JOUR201: News Writing and Reporting I (3 credits)
- JOUR203: Introduction to Multimedia Skills (3 credits)
- JOUR300: Journalism Ethics (3 credits)
- JOUR352: Interactive Design and Development (3 credits)
- JOUR396: Supervised Internship (2 credits)
- JOUR400: Media Law (3 credits)
- JOUR410-469: Journalism and Society (3 credits)
- JOUR470-479: Media Research (3 credits)
- Journalism Capstone Experience (3 credits)
- JOUR480: Capstone Colloquium: The Business of News (1 credit)

SPECIALIZATIONS (12 credits)

MULTI-PLATFORM:
JOUR202: News Editing (3 credits)
JOUR320: News Writing and Reporting II: Multiplatform (3 credits)
JOUR321-389: One Journalism Skills Elective (3 credits)
JOUR321-389: One Journalism Skills Elective (3 credits)

BROADCAST:
JOUR262: News Videography (3 credits)
JOUR360: News Writing and Reporting II: Broadcast (3 credits)
JOUR361: Television Reporting and Production (3 credits)
JOUR321-389: One Journalism Skills Elective (3 credits)

Total JOUR credits (42)*

*Student can count three additional JOUR credits toward their degree if they take an additional course from JOUR321-389, JOUR410-469 or JOUR470-479 in place of an UL Elective.

III. Specific Journalism Requirements

- Completion of JOUR201: Students must complete JOUR201 with a "C-" or higher. Consult the Undergraduate Catalog or online Schedule of Classes for a list of prerequisites and restrictions for journalism courses.
- "C-" Requirement: Students must earn a "C-" or better in JOUR201, JOUR203, JOUR202/262 and JOUR320/JOUR360 prior to taking any courses for which they serve as a prerequisite.

Placement in Courses

Enrollment in JOUR201 requires proof of grammar competency through the attainment of at least a "C-" in JOUR181 or a score of 80 or higher on the grammar diagnostic exam, completion of ENGL101 (or another FSAW course) with at least a "C-" and completion of JOUR200 with at least a "C-".

Advising

The Office of Student Services provides academic advising to journalism majors on an appointment basis. It is located at 1100 Knight Hall. The phone number is 301-405-2399.

Living-Learning Programs

College Park Scholars - Media, Self & Society

Dr. Kalyani Chadha, Director, Media, Self & Society Program

Co-sponsored by the Philip Merrill College of Journalism, the Media, Self and Society Program is one of the living/learning programs offered by the College Park Scholars Program (CPSP). This two-year program for incoming freshmen is designed to give students the opportunity to undertake a critical examination of media organizations, institutions and practices as well as gain practical experience through involvement in a media-related activity of their choice. For more information, see the College Park Scholars Program entry in the "Office of Undergraduate Studies" section under "The Colleges and Schools."

Honors Program

Although no departmental honors program currently exists within the College, academically outstanding students are recognized through Kappa Tau Alpha, the Journalism academic honor society.

Student Societies and Professional Organizations

The college sponsors student chapters of the Society for Professional Journalists, the National Association of Hispanic Journalists, and the National Association of Black Journalists. These organizations provide students with opportunities to practice skills, establish social relationships with other students both on and off campus, and meet and work with professionals in the field.

For information on the organizations listed, contact the Student Services Office, 1100 Knight Hall, 301-405-2399.

Financial Assistance

The College is committed to enrolling the most qualified students, regardless of ability to pay. Toward that end, the College, through donor-sponsored awards, gives annual scholarships to undergraduates. Additionally, the University awards scholarships and financial aid including low-interest loans, grants and work-study opportunities.

Sources for Incoming Students

All incoming freshman are automatically considered for scholarships granted by the College.

Frank R. Cormier White House Correspondents' Association Scholarship. Established in 1991 by the White House Correspondents' Association, this award was renamed in 1994 to honor the memory of Frank R. Cormier, who for two decades exemplified the best qualities of White House correspondents with a blend of gentleness, humor and professionalism that endeared him to the readers of his dispatches for The Associated Press. This renewable scholarship is awarded to four undergraduate students from Washington, D.C. or Prince George's County, Maryland on the basis of financial need.

Baltimore Sun Diversity in Journalism Scholarship. Established by the Times Mirror Foundation, this non-renewable award is granted to an incoming freshman with high academic achievement in high school and wide-ranging cultural and economic background, who resides in the Baltimore Sun's circulation area.

William Randolph Hearst Scholarship. Established in honor of William Randolph Hearsts's 82nd birthday, these are among the college's first scholarships. A limited number of non-renewable awards are granted to outstanding Maryland high school students admitted to the Philip Merrill College of Journalism.

William C. Huffman Scholarship. This fund was established by Diana L. Huffman, the Baltimore Sun Distinguished Lecturer at Merrill College, in honor of her father, Dr. William C. Huffman (1910-1988), and his commitment to education and philanthropy. This renewable scholarship is awarded to incoming freshmen at the Philip Merrill College of Journalism who are in good academic standing and remain so throughout the term of the award, demonstrate financial need, and are residents of Washington, D.C. or Prince George's County, Maryland. Students are eligible to re-apply for the award in subsequent years as long as they still qualify for the award criteria.

Jonathan Ledecky Sports Journalism Scholarship. Funded by New York Islanders minority owner Jonathan Ledecky to support scholarships for students in the Philip Merrill College of Journalism who have interest in sports journalism. Recipients must have an expressed interest in sports journalism, be accepted for full-time enrollment, and maintain good academic standing.

Sources for Current Students

Students are selected on a basis of need, merit, donors' intent or a combination of these factors. Below is a selection of scholarships students may apply for:

The Steven C. Affens Broadcast Journalism Scholarship. This scholarship is awarded to an undergraduate broadcast student. Recipients shall be selected from applications that include evidence of the student's on-air TV work. A combination of overall academic performance, and judging of a sample of a student's on-air programming that emphasizes potential in visual storytelling and high-quality video news photography, will be used by the [PMC] scholarship committee in making the award.

Carolyn A. and Howard F. Ahrens Scholarship. Established by a bequest from Carolyn A. Ahrens, this scholarship is awarded to sophomores or juniors enrolled in the Philip Merrill College of Journalism. Students must be Maryland residents.

Fred I., Edna O. and Fred J. Archibald Scholarship. Established by a bequest from Fred I. Archibald of Baltimore News-American and Frederick News-Post newspaper editors, this scholarship is awarded to undergraduate students enrolled in the Philip Merrill College of Journalism.

Professor Thomas Aylward Journalism Scholarship. Awarded to a Merrill College Ph.D. student.

Paul Berg *Diamondback* Scholarship. Funded by friends and family and The Washington Post in memory of Paul Berg, Diamondback editor-in-chief 1978-79 and assistant editor of The Post's Health section at the time of his death in 1989. This scholarship is awarded to a Diamondback editor or news staff member who displays special achievement and effort while working for the campus daily newspaper. Applicants must have served at least one semester on the Diamondback staff, and must return to campus for the following fall semester. All majors may apply for this scholarship.

Bonnie Bernstein Scholarship. Bernstein is a 1992 Merrill College graduate who was an Academic All-American gymnast. Applicants must be a full-time, upperclass multi-platform journalism major (with preference for students in the broadcast component) who participates in an NCAA-sanctioned sport at the University of Maryland. Applicants also need to show evidence of financial need, have a GPA of 3.0 or above and submit an essay describing why they should receive the award.

John Story Cleghorn and Nona Reese Cleghorn Scholarship. Funded by the late College Dean Reese Cleghorn in honor of his parents, this scholarship is awarded to undergraduate or graduate journalism students based on academic merit, with preference given to students with financial need.

Reese Cleghorn Excellence in Journalism Scholarship. Created in memory of the late College Dean Reese Cleghorn, this scholarship is awarded to undergraduate or graduate journalism students based on academic merit, with preference given to students with financial need.

Frank R. Cormier White House Correspondents' Association Scholarship. Established in 1991 by the White House Correspondents' Association, this award was renamed in 1994 to honor the memory of Frank R. Cormier, who for two decades exemplified the best qualities of White House correspondents with a blend of gentleness, humor and professionalism that endeared him to the readers of his dispatches for The Associated Press. This renewable scholarship is awarded to four undergraduate students from Washington, D.C. or Prince George's County, Maryland on the basis of financial need. Students must re-apply each year to be considered for renewal.

Theodore Crown, Sr. and Joseph T. Crown, Jr. Scholarship. Created by Kathryn Crown '66 in memory of her father and brother, this scholarship is awarded to undergraduate journalism students with junior or senior class standing.

Ralph Crosby Journalism Excellence Award. Funded by Mr. Crosby, a 1956 graduate of the College who is a member of the Merrill College Board of Visitors and chairman of Crosby Marketing Communications, Inc., in Annapolis. This scholarship provides an award toward tuition and fees to an undergraduate journalism student based on academic performance and financial need, with preference (in order) given to a student from Annapolis, Anne Arundel County or the State of Maryland.

The Ralph and Carlotta Crosby TerpStart Endowed Scholarship in Journalism. Ralph Crosby '56 said, "Being a journalism major at the University of Maryland helped form my character, gave me a profession, and trained me academically and socially. Good reasons for giving back." This scholarship provides annual need-based funds, under the auspices of the TerpStart Matching Scholarship Program, with preference given (in order) to undergraduate students from Anne Arundel County or the State of Maryland who are enrolled in the Philip Merrill College of Journalism. (Students can not apply for this scholarship.)

Entravision. Awarded to a broadcast student in the Merrill College with high academic achievement. Preference is given to those who have demonstrated interest or experience covering issues or stories related to the Hispanic community, those who double major or minor in a Spanish language, who have studied abroad in Spain, Central America, or Latin America, and students who have worked or interned at a Spanish-language media organization.

Penny Bender Fuchs Scholarship. This scholarship was established by colleagues, family and friends of Penny Bender Fuchs, an admired and respected member of the Merrill College faculty from 1999 until her death in 2013. Rising Merrill College juniors and seniors are eligible for this award. Preference is given to students who have earned a grade point average of 3.0 or higher in journalism courses.

Lawrence L. Goldberg and Lillie Z. Goldberg Journalism Scholarships. Funded by Mr. and Mrs. Goldberg and their relatives and friends in honor of former Knight Chair Professors

Hodding Carter III and Haynes Johnson, and former professor David Broder, three faculty members who taught classes that the Goldbergs attended at the Merrill College as retirees. Scholarships are awarded to undergraduate or graduate journalism students based on academic merit, with preference given to students with financial need.

Gridiron Scholarship. The Gridiron Foundation Journalism Scholarship was established in 2002 by the Gridiron Club and Foundation. The Gridiron Club is the oldest and most prestigious journalistic organization in Washington D.C., and its foundation makes charitable contributions and provides scholarship to journalism students. The Gridiron Foundation Journalism Scholarship is awarded to undergraduate students based upon outstanding academic achievements and a stated commitment to pursue a career in journalism. Students must re-apply each year to be considered for renewal.

The Michael Gurevitch Journalism Scholarship. The Michael Gurevitch Journalism Scholarship was established in January 2009 by Patricia Gurevitch, in memory of her husband. An internationally renowned mass communication scholar, Professor Emeritus Michael Gurevitch taught at the University of Maryland's College of Journalism from 1983 until 2008. Much of his work was grounded in case studies and original research relating to how journalists grasped the practical problems of keeping the public informed. Professor Gurevitch would not have been able to be in the United States to earn his 2 degrees if he did not have help from others. This scholarship provides non- renewable funds for doctoral students in the Merrill College. Preference will be given to international students with financial need.

The Ralph M. Hamaker TerpStart Endowed Scholarship. Started by Ralph M. Hamaker '53, this scholarship provides annual need-based funds, under the auspices of the TerpStart Matching Scholarship Program, for undergraduate students enrolled in the Philip Merrill College of Journalism. (Students cannot apply for this scholarship.)

The Ray Hiebert Scholarship Fund. This scholarship is awarded to graduate broadcast students.

Carol Horner Journalism Scholarship. This scholarship was established by family, friends and colleagues of the late Ms. Horner, a dedicated journalist and woman of wonderful good humor who forged a distinguished career as a reporter and editor at the Philadelphia Inquirer and Wall Street Journal before serving as director of the Knight Center for Specialized Journalism at the University of Maryland. This non-renewable scholarship is awarded to a high-achieving undergraduate student with financial need in the Philip Merrill College of Journalism.

Christopher Houston '85 Scholarship. The K. Christopher Houston Scholarship was established in memory of K. Christopher "Chris" Houston, '85, a distinguished journalist who worked for CNN Headline News in Atlanta and WUSA-TV in Washington, D.C. Funded by Karen Gray Houston, family and friends, this scholarship is awarded to a student at the Philip Merrill College of Journalism who has demonstrated a strong interest in pursuing a career in broadcast journalism.

Jay Jackson Scholarship. Funded by former Annapolis newspaper executive Allen Jackson in memory of his brother Jay, an honors graduate of Maryland's second journalism class. This scholarship is awarded based on merit and need, to a multi-platform student who will be a senior the following semester.

Haynes Johnson Scholarship Fund. The Haynes Johnson Scholarship Fund was established in 2013 by funds donated from the faculty, staff and friends of Haynes Johnson. This scholarship will be awarded to an outstanding student in the Merrill College based on financial need and academic merit.

Robert C. Keith Fund for Investigative Journalism. The Fund shall be used to provide support for scholarships and teaching grants to faculty and students and support for other investigative journalism endeavors at the discretion of the dean of the Philip Merrill College of Journalism.

Phyllis and Frank Kopen Broadcast Journalism Scholarship. Endowed by broadcast faculty member and College alumna Sue Kopen Katcef '76 in honor of her parents, this scholarship is awarded to a sophomore or junior broadcast student (radio or TV) in recognition of their contributions to the College's broadcast journalism program. Consideration may be given to financial need and academic performance. Awards may be renewable for up to two years if recipients continue to make satisfactory academic progress. Students must re-apply each year to be considered for renewal.

Tom Kunkel Journalism Excellence Scholarship. Created by colleagues and friends of former dean Tom Kunkel (2000-2008), this scholarship is awarded to outstanding undergraduate students based on academic merit, with preference given to students with financial need.

Jonathan Ledecky Sports Journalism Scholarship. Funded by New York Islanders minority owner Jonathan Ledecky to support scholarships for students in the Philip Merrill College of Journalism who have interest in sports journalism. Recipients must have an expressed interest in sports journalism, be accepted for full-time enrollment. and maintain good academic standing.

Rick Martin '92 Scholarship in Journalism. The Rick Martin '92 Scholarship in Journalism was established in 2015 by Mr. Rick Martin. Mr. Martin has worked in the television news industry for more than 20 years as an assignment editor and manager – at CNN as well as other local news markets in Washington, D.C., Baltimore and Philadelphia. He has covered the White House, Congress, the Pentagon and the State Department. He has covered major breaking news, including the White House shooting by gunman Francisco Duran, the D.C. Sniper Attacks, and the September 11th terrorist attacks. Martin was born in Washington, D.C., and grew up in the West Indies' twin-island nation of Trinidad & Tobago. The Scholarship shall be awarded to an undergraduate student in the Philip Merrill College of Journalism who demonstrates financial need and maintains good academic standing. This scholarship may be renewed each year if the student meets these criteria. Students must re-apply each year to be considered for renewal.

Maryland-Delaware-DC Press Association Scholarship. This scholarship is funded by the MDDC Press Association and is awarded to full-time undergraduate multi-platform (non-

broadcast) students who are residents of Maryland, Delaware, or D.C. Recipients and must also have completed at least three semesters with an overall GPA of 3.0 or higher.

Ron Menchine Broadcast Journalism Scholarships. Established in 2013 with a bequest from the estate of Mr. Menchine, a 1956 Maryland graduate who was the last baseball broadcasting voice of the Washington Senators. In his earlier career, he was sports director of WBAL radio in Baltimore and WDCA-TV in Washington, and was a play-by-play announcer for Temple and Navy football games. The Menchine fund awards scholarships to high-achieving broadcast students in the Merrill College.

The David Mills Scholarship (The *Diamondback*). The David Mills Scholarship is awarded annually to at least one student who will receive a $5,000 scholarship. The requirements include: they be a *Diamondback* (DBK) staffer with at least two semesters of experience; be full time (12 or more credits); and that they continue to work at the DBK for the two semesters that follow the award. The students are asked to submit an application and materials which should include writing, multi-media or other journalism samples. The final decision is made by David Simon (DBK and UMD alumnus), a current UMD professor from the English Department and a relative of the late David Mills for whom the award is named.

Gertrude Poe Fund for Journalism Excellence. An endowed fund established in 1988 by the former editor, publisher and owner of the weekly Laurel News Leader in Maryland. Ms. Poe was the first female president of the Maryland-Delaware-D.C. Press Association and was inducted into to the MDDC Hall of Fame in 1987. Spendable income from the Poe fund supports student scholarships in the Merrill College, with preference given to students with an interest in community journalism.

Frank Quine and Mary Ellen Doran-Quine Journalism Scholarship. Funded by the College's former Assistant Dean Frank Quine and his wife, this scholarship is awarded to a high achieving multi-platform student (grad or undergrad) with financial need and high potential as a professional journalist.

Stanley E. Rubenstein Memorial Journalism Scholarship. Established by Ruth Ann Rubenstein '53 in memory of her husband, a 1953 economics graduate of Maryland, who became a leading New York City public relations executive. This scholarship is awarded to an outstanding undergraduate student based on financial need and academic merit.

Richard W. Worthington Journalism Scholarship. Named in memory of the late publisher of the weekly Bel Air, Md. Aegis newspaper. This scholarship is awarded to a multi-platform major (undergraduate or graduate) based on a combination of academic excellence, evidence of potential as a journalist and financial need. Preference given to a resident of Harford County, Maryland.

From the University

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other University offices,

participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

The National Scholarships Office is committed to helping students of the University of Maryland identify, apply for, and win national scholarships and fellowships in their pursuit of higher education. They also help students find research opportunities in their fields of study.

From Outside Sources

The Academy of Television Arts & Sciences — Fred Rogers Memorial Scholarship (www.emmys.com/foundation/programs/mister-rogers) - The Academy of Television Arts & Sciences and the accounting firm, Ernst & Young, have created this $10,000 scholarship to support and encourage college students to go into the field of children's television. The scholarship is open to graduating seniors who are continuing on to graduate school and graduate students (Masters/Ph.D.)

Peter Agris Memorial Scholarships (www.alphaomegacouncil.org/scholarships/application-3/) - Five scholarships of $5,000 are available to journalism or communications graduate and undergraduate students of Greek American heritage. March 1 Deadline.

American Copy Editors Society Scholarships (www.copydesk.org/education-fund/apply/) - All ACES scholarships are for potential professional copy editors. The scholarships are open to students who will be juniors, seniors or graduate students in the fall, and graduating students who will take full-time copy editing jobs or internships. Late November deadline.

American Society of Newspaper Editors (www.schooljournalism.org/scholarships/) - Comprehensive listing of various journalism scholarships from ASNE via schooljournalism.org.

Asian American Journalist Association (www.aaja.org/apply-for-a-scholarship-now/) - AAJA offers a variety of scholarships.

Association for Women in Sports Media Scholarship (awsmonline.org/?s=scholarship) - AWSM offers an annual scholarship program for female college students who plan to pursue careers in any sports communications fields: writing, copy editing, public relations, broadcasting, Internet or photography. Winners in each category receive a $1,000 scholarship.

The John Bayliss Broadcast Foundation (www.beaweb.org/bayliss/radio.html) - Juniors, seniors and graduate-level broadcast majors are encouraged to apply for the Bayliss Radio Scholarship.

CCNMA: Latino Journalists of California Scholarship (ccnma.org/scholarships-and-awards/scholarships/) - Open to residents of California only.

Chips Quinn Scholars Program (www.newseuminstitute.org/initiatives/chips-quinn-scholars-program-for-diversity-in-journalism/) - Sponsored by the Freedom Forum, the program offers journalism students of color hands-on training, paid internships and $1,000 awards. Candidates

must be nominated by the College to be considered for the program. Recent graduates are also encouraged to apply.

Evert Clark/Seth Payne Award for Young Science Journalists (casw.org/evert-clark-award) - For nearly three decades, the Evert Clark/Seth Payne Award has recognized the contributions to journalism of both Ev Clark and Seth Payne. The Award is intended to encourage young science writers by recognizing outstanding reporting and writing in any field of science. The winner will receive $1,000 and expenses to attend the annual meeting of the National Association of Science Writers (NASW) and the New Horizons briefing of the Council for the Advancement of Science Writing (CASW) in October.

Freedom Forum — Al Neuharth Free Spirit Scholarship (freespirit.org/) - The Al Neuharth Free Spirit Scholarship and Conference Program annually awards $1,000 college scholarships to each of 102 high school seniors (a male and female from each state and the District of Columbia) who are interested in pursuing a career in journalism and who demonstrate qualities of "free spirit."

Garden State Scholastic Press Association (www.gsspa.org/scholarships/index.html) - Two scholarships are available from GSSPA for New Jersey high school students.

National Academy of Television Arts and Sciences, Chesapeake Bay Chapter — Betty Endicott Scholarship (www.capitalemmys.tv/students/scholarships/) - NATAS-DC will award scholarships ranging from $1000 to $5000 to full-time college sophomores, juniors or non-graduating seniors with a declared major in communications, television or broadcast journalism. March application with May announcement – check website for announcement.

National Association of Black Journalists Sustaining Scholarship Awards (www.nabj.org/?SEEDScholars2015) - This competition for two four-year sustaining scholarships is open to any graduating foreign or U.S. high school senior who plans to pursue a career in journalism. NABJ offers a number of additional scholarships as well. February deadline.

The National Association of Negro Business and Professional Women's Clubs, Inc. (www.nanbpwc.org/index-11.html) - Offers two scholarships for African American students whose major can include journalism. March deadlines.

National Association of Hispanic Journalists Scholarships (www.nahj.org/scholarshipinfo/) - Open to high school grads, college and graduate students who are interested in a career in broadcast, photojournalism or print journalism. March 1 deadline.

The National Italian American Foundation (www.niaf.org/programs/scholarships/) - Scholarships open to Italian American students who demonstrate outstanding potential and high academic achievements or those students from any ethnic background majoring or minoring in Italian language, Italian studies, Italian American studies or a related field, who demonstrate outstanding potential and high academic achievements. Must have a membership in NIAF to apply and an ancestor who immigrated to the U.S. from Italy.

National Lesbian and Gay Journalists Association Leroy F. Aarons Scholarship Award (www.nlgja.org/students/aarons.htm) - Leroy F. Aarons and the Kay Longcope scholarships are awarded annually to students who demonstrate a commitment to providing fair and accurate coverage of the lesbian, gay, bisexual and transgender (LGBT) community. These annual scholarships are presented in honor of two prominent journalists. Applications will be available in late February. They will also have the Kay Longcope Scholarship which will be available at the same time.

National Press Club — Persina Scholarship for Minorities in Journalism (www.press.org/about/scholarships) - Renewable scholarship for $2,500 per year for up to 4 years. For minority students planning to pursue a career in journalism. New: Richard G. Zimmerman Scholarship of $5000 (non-renewable.) The Press Club also offers a graduate-level scholarship.

New York Women In Communications Foundation Scholarship Program (www.nywici.org/students/scholarships) - Open to high school seniors as well as undergraduate and graduate students. Scholarships are awarded on the basis of academic excellence, need and a demonstrated commitment to the field of communications.You must be a permanent resident of New York, New Jersey, Connecticut or Pennsylvania. Deadline January 30.

The NewsGuild — The David S. Barr Award (www.newsguild.org/david-s-barr-award-student-journalism) - The David S. Barr Award is intended to recognize one high school and one college student for their journalistic achievement and to encourage young journalists to focus on issues of social justice. (Check the Newspaper Guild (now Newsguild.org) website for information about when applications will be accepted.)

The Overseas Press Club of America Foundation (www.overseaspressclubfoundation.org/programs.html) - Aspiring foreign correspondents and students interested in international journalism are encouraged to apply for OPC Foundation's scholarship. The winners receive $2,000 checks each.

Radio Television Digital News Association and Foundation (www.rtdna.org/content/scholarship_info#.UiiKoLzFaZs) - RTDNA and RTDNF honor professional achievements in electronic journalism through numerous prestigious awards, scholarships, fellowships and internship programs. April 30 deadline to apply.

Society of Professional Journalists Maryland Pro Chapter College Scholarship (www.spj.org/grants.asp) - Applicants must have regular home residence in the State of Maryland, but may attend colleges or universities outside Maryland in nearby Virginia, D.C. or Pennsylvania. NOTE: This scholarship has not been given in a number of years but there are plans to reactivate it in 2013-2014. We'll provide a link when it is announced.

SPJ — Sigma Delta Chi Journalism Scholarships (www.sdxdc.org/SDXDC%20Scholarship.html) - The SDX Foundation of Washington, the educational arm of the Washington, D.C., Professional Chapter of the Society of Professional

Journalists, will be awarding scholarships totaling up to $15,000 to full-time juniors or seniors. Late February deadline.

South Asian Journalists Association Scholarships (www.saja.org/scholarships) - The South Asian Journalists Association awards one $500 scholarship to a high school senior about to enter college and one $500 scholarship to a college student.

For more information, and eligibility requirements, visit
http://merrill.umd.edu/admissions/tuition-financial-aid/

Awards and Recognition

Maryland-Delaware-District of Columbia Press Association Top News-Editorial Student - Awarded annually to an outstanding top broadcast journalism student and top multimedia journalism student at commencement.

Julie Galvan Outstanding Campus Member Award - The Society of Professional Journalists chapter selects one graduate in journalism who is outstanding in his or her class on the basis of character, service to the community, scholarship, proficiency in practical journalism and significant contributions to their SPJ chapter.

Kappa Tau Alpha Top Scholar Award - Awarded at each commencement to the journalism student earning the highest academic achievement for all undergraduate study.

Kappa Tau Alpha National Honor Society - The top ten percent of the journalism graduating class is inducted into this national organization each commencement.

Fieldwork Opportunities

Internships

Supervised internships are essential. Adrianne Flynn is the Internships and Career Development Director, 3105A Knight Hall, 301-405-7247.

Professional Experience Opportunities

Capital News Service

Capital News Service is a student-powered news organization run by the Philip Merrill College of Journalism. For more than two decades, we have provided deeply reported, award-winning coverage of issues of import to Marylanders.

With bureaus in College Park, Annapolis and Washington run by professional journalists, we deliver news in multiple multimedia formats via partner news organizations, a destination website, a nightly on-air television newscast and affiliated social media channels. We provide breaking news coverage, in-depth investigative and enterprise journalism, and serve as a

laboratory for students to test and develop innovative new methods of reporting and telling stories.

UMTV

For students interested in broadcast news, opportunities to gain experience with cable news programs are presented in the curriculum and by volunteering at the campus television station, UMTV.

Student-Run Campus Media Outlets

Students can gain broadcast news and sports reporting experience through the campus radio station, WMUC. There are numerous student-run publications on campus. These include, The Diamondback, an independent daily newspaper that appears in print and online. The Diamondback is one of the most-read campus dailies in the nation. Among the many campus publications there are literary magazines, newspapers and websites of interest to special populations. These include the Eclipse, La Voz Latina, The Mitzpeh, Public Asian, Stories Beneath the Shell, and Unwind magazine.

SCHOOL OF PUBLIC HEALTH (SPHL)

2242 SPH Building, 301-405-2438
www.sph.umd.edu
Dean: Boris Lushniak
Associate Dean(s): Dushanka Kleinman, Stephen Roth
Assistant Dean(s): Coke Farmer, Amanda Grimes

The School of Public Health provides preparation leading to the Bachelor of Science degree in the following professional areas: Kinesiology, Community Health, Family Science and Public Health Science. In addition, each department offers a wide variety of courses for all university students. These courses may be used to fulfill the general education requirements and as electives.

Programs combining service and instruction are provided by the Children's Health and Developmental Clinic (see KNES389E) and the Adult Health and Developmental Program (see HLSA287).

The School of Public Health is fully accredited through the Council on Education for Public Health.

Special Advantages and Facilities

The Friedgen Family Student Lounge, located in the SPH Building is available for use by all students in the college between 7 a.m. and 10 p.m. Access is through the student ID card. See the Director of Facilities in 3310 SPH Bldg if you do not have access. The Student Service Center, 2242C SPH, has study areas and computers available to SPH students from 8:00 am -

4:30 pm daily. Occasionally, availability and access are limited due to classes and student programs.

The School also offers several specialized laboratories related to student success, technology and specific course applications.

Undergraduate Degree Requirements/Degree Options

The School of Public Health offers four undergraduate degree programs: Community Health, Family Science, Kinesiology and Public Health Science. The Public Health Science program is offered at both the College Park and Shady Grove campuses.

Advising

The School of Public Health's Center for Academic Success and Achievement serves all students, particularly upon entry into the major. Following the first semester at College Park, students are encouraged to see their departmental advisors. It is strongly recommended that students seek regular advising throughout their academic career.

For student athletes and students currently on probation, advising is mandatory. Please see the CASA website: http://sph.umd.edu/%3Cfront%3E/undergraduate-center-academic-success-and-achievement.

Departments and Centers

The School is composed of several centers, departments and institutes. The Centers for Health Equity, Health Literacy, Prevention Research, Aging, Health Behavior Research and Young Adult Health and Development offer multiple opportunities for students to engage with faculty mentors in funded research projects. The following departments offer major programs that lead to a Bachelor of Science degree:

Department of Behavioral and Community Health
Department of Family Science
Department of Kinesiology
Public Health Science (at the College Park campus and also the Shady Grove Campus)

Living-Learning Programs

Global Public Health Scholars Living and Learning Community
The School of Public Health offers a Global Public Health Scholars program within the College Park Scholars Living and Learning Communities. For more information please refer to www.scholars.umd.edu.

College Honors Program

For specific departmental honors program admissions information and requirements, please refer to the individual departments.

Approved Student Societies and Professional Organizations

Phi Alpha Epsilon: Honorary Society of the School of Public Health. The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of kinesiology, family science, community health, public health science and related areas.

Students qualify for membership when they attain junior standing in kinesiology, family science, public health science or community health, and have a minimum overall average of 3.5 and a minimum of 24 credits at the University of Maryland, College Park. For additional information, please contact the Center for Academic Success and Achievement.

The School of Public Health is also home to the university- wide Public Health Without Borders organization. For more information, please see http://sph.umd.edu/content/public-health-without-borders.

Financial Assistance

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

Awards

Awards within the School of Public Health include the Jerry P. Wrenn Scholarships, the Noel Myricks Endowed Scholarship, the Ned Gaylin Endowed Scholarship, the Jeanette Spier Beavers Memorial Scholarship the Andrew Billingsley Endowed Scholarship, the David Hyde Scholarship, the Doris Sands Scholarship, the Quinn Scholarship, the Alice Morgan Love Scholarships, NASPE Major of the Year Award, EDA/AAPHERD Outstanding Future Professionals Awards, the Dean's Senior Scholars Awards the Fraley Award, and several TerpStart Scholarships.

Research Units

Center on Aging
http://sph.umd.edu/department/hlsa/center-aging

The Center on Aging, as part of the Department of Health Services Administration (a graduate program), stimulates and supports aging-related activities within existing departments, colleges,

and schools throughout all of the various institutions of the University System of Maryland. The Center coordinates the Graduate Gerontology Certificate (master's and doctoral levels), the university's first approved graduate certificate program. The Center assists undergraduate and graduate students interested in the field of gerontology and helps them to devise educational programs to meet their goals. It is a research center working in health and aging policy, lifelong learning and civic engagement, disability and aging, behavioral and social aspects of aging, and health service delivery systems. It also conducts community education programs, assists faculty in pursuing research activities in the field of aging, conducts conferences on adulthood and aging-related topics, provides on- and off-campus technical assistance to practitioners who serve older adults and sponsors the University of Maryland Osher Lifelong Learning Institute, Legacy Leadership Institutes, the University of Maryland Retirees Association, and Retired and Senior Volunteer Programs International (RSVPI).

Herschel S. Horowitz Center for Health Literacy

The Herschel S. Horowitz Center for Health Literacy has been established to address the major public health problem of poor health literacy and its effect on health outcomes. This is the nation's first academic based health literacy center and is devoted to improving health through the lifespan with emphasis on closing the health disparities gap. Research is needed to establish the nature of the casual relationships between and among the various factors including culture and society, education systems, health systems and health outcomes and costs to develop effective interventions and health policy. The Center was established with a generous gift from Alice Horowitz and her family.

Maryland Center for Health Equity

The Maryland Center for Health Equity is designed to address issues connected with health disparities. The emphasis is on creating effective change from the level of the individual to issues at the macro policy level. The Director is Dr. Stephen Thomas. For more information, please contact the Center at 3302E, School of Public Health Building, 301 405-8859.

The University of Maryland Prevention Research Center

Bradley O. Boekeloo, ScM, PhD
Professor, Department of Public and Community Health
Director, Prevention Research Center
University of Maryland School of Public Health
College Park, MD 20742
Office: 301-405-8546
Cell: 202-841-8546

Student Engagement and Service Units

Center for Academic Success and Achievement

0222 School of Public Health Building, 301-405-2753
www.sph.umd.edu/advising

The Center for Academic Success and Achievement provides advising on admissions, orientation, academic policy, 4-year planning, career information, and required advising for students on academic probation or dismissal and all college athletes. The Center collaborates with the departments in recruitment, retention and graduation initiatives. The Center is open from 8:00 a.m. - 4:30 p.m. week days for use by students for studying and group meetings. There are twelve computers available for student use.

Gymkana Troupe

1120 SPH Building, 301-405-2566
www.gymkana.umd.edu
Director: Scott Welsh

For over 60 years, the University of Maryland Gymkana Troupe has been influencing young people to live healthy lifestyles. Founded at the University of Maryland College Park campus in 1946, the troupe has traveled throughout Maryland and neighboring states promoting drug-free living. Each of its 60+ members pledges themselves to be drug-free. Through their role-modeling and unique gymnastic performances, they have influenced hundreds of thousands of people to join them in living a drug-free life. The troupe, which is open to all University of Maryland students of all abilities, is considered a one-of-a-kind organization and is believed to be the only collegiate exhibitional gymnastic troupe actively touring the United States. As an outreach program of the School of Public Health, Publthe Gymkana Troupe uses peer role models who share their experiences and their message of healthy living with others. Students influencing students to avoid drugs is the heart of Gymkana's program.

Public Health Without Borders

Director: Dr. Elisabeth Maring
Website: http://sph.umd.edu/content/public-health-without-borders

Half the Sky Movement

Director: Dr. Elisabeth Maring

SCHOOL OF PUBLIC POLICY (PLCY)

2101 Van Munching Hall, 301-405-6330
www.publicpolicy.umd.edu/
Dean: Robert Orr
Assistant Dean(s): Nina P. Harris

The school currently offers a Bachelor of Arts in Public Policy, as well as minors in Sustainability Studies and Public Leadership. Courses may be found under PLCY. These courses are suggested for students wishing to develop knowledge and experience in public policy and leadership. The school, in collaboration with the College of Behavioral and Social Sciences, also offers a 5-year bachelor's/master of public policy program for selected students. For additional information on the wide range of undergraduate opportunities see https://www.publicpolicy.umd.edu/undergraduate

Undergraduate Degree Requirements/Degree Options

PLCY Major Requirements

C- or better is required in all major courses and the cumulative average of these courses must be a 2.0.

Requirements	*Credits*
Benchmark Requirement One	
*Must be completed by the end of **two semesters** into the major*	
PLCY100—Foundations of Public Policy	3
HIST201 Interpreting American History: From 1865 to the Present (HU)	3
Benchmark Requirement Two	
*Must be completed by the end of **four semesters** into the major*	
PLCY 101 Great Thinkers on Public Policy (HS/IS)	3
STAT 100 (AR) Elementary Statistics and Probability or higher	3
Required Major Courses	
ECON 200 Principles of Microeconomics (HS)	3
PLCY 202 Public Leaders and Active Citizens (SP/IS pending) OR PLCY201 Leadership for the Common Good (SP/IS)	3
PLCY 203 Liberty and Justice for All: Ethics and Moral Issues in Public Policy	3
Introduction to Public Policy Focus	3
PLCY 303 Public Economics: Raising and Spending the People's Money (Pre-req: ECON200)	3
PLCY 300 Governance: Collective Action in the Public Interest (Pre-req: PLCY100 and PLCY101)	3

PLCY 304 Evaluating Evidence: Finding Truth in Numbers (Pre-req: STATS100)	4
PLCY302 Examining Pluralism in Public Policy (Pre-req: PLCY203) (UP pending)	3
PLCY 305 Internship Class OR Approved Study Abroad	3
PLCY306: Public Policy Analysis in Action (Taken after 60 credits)	3
PLCY 401 Contemporary Issues in Public Policy (Taken after 90 credits)	3
PLCY 400 Senior Capstone (Taken after 90 credits; Pre-req: PLCY306)	3
Focus or PLCY electives (9 credits)	
Focus/PLCY Elective Course 1	3
Focus/PLCY Elective Course 2	3
Focus/PLCY Elective Course 3	3
TOTAL Major Credits	**58**

Advising

The Public Policy Major has mandatory advising every semester. Academic advising is an ongoing process that helps students clarify their educational and career goals, and then chart a meaningful plan for achieving those goals. Advising is the joint responsibility of the student and the advisor. The advisor assists students in evaluating their degree progress and helps them select appropriate courses and other educational experiences tailored to their personal goals. Ultimately, students are responsible for making decisions, setting and meeting identified goals and published requirements. Students can contact the Public Policy advising office by calling (301) 405-2370 or emailing plcyundergrad@umd.edu.

Minors

Minor in Sustainability Studies

The minor in Sustainability Studies provides students the opportunity to learn how natural resources, human relationships, policies, economics, and the environment are related. The minor encourages critical thinking to creatively and positively address global challenges that affect future human populations, cultures, and the environment. It can complement any major on campus, and provide both intellectual breadth and depth in a challenging area of inquiry that is gaining interest in businesses, government agencies, and non-governmental organizations. Together with a major, the Sustainability Studies Minor will provide students with the critical thinking and problem-solving skills necessary to work on sustainability issues as citizens, employees, or graduate students.

The minor includes (a) one required course, AGNR/PUAF301: Sustainability; (b) one course from each of three approved course lists (for a total of 3 courses); and (c) and 3 credits comprised of an additional approved course, an internship, or an approved study abroad experience.

For more information, visit www.publicpolicy.umd.edu/sust or e-mail susminor@umd.edu.

Minor in Public Leadership

The Public Leadership minor will allow students to examine today's most pressing issues. Matters facing our world leaders such as, the global environment, human rights, the criminal justice system, equity in education, diversity, poverty, and inequality will be analyzed on multiple levels. Students will face these same challenges in their courses while learning to critically assess and recommend viable solutions through effective leadership for the public good. In order to achieve this, the School proposes a minor to engage students in leadership for the public good and effective citizenship. Additionally, the minor serves as a feeder for the School's graduate program.

For more information, visit www.publicpolicy.umd.edu/plminor or e-mail plminor@umd.edu.

Living-Learning Programs

Public Leadership Program in College Park Scholars

Public Leadership explores the theory and practice of leadership, empowering students to become social change agents through hands-on public service projects and examination of pressing social, political, and economic issues. Public Leadership is defined as "the inspiration and mobilization of others to undertake collective action in pursuit of the common good."

The mission of the College Park Scholars Public Leadership Program is ***to develop social change agents who provide ethically based leadership from the local to the global level.*** Students become informed citizens able to reason critically and persuasively about public matters and to apply diverse approaches to leadership and citizenship in a multicultural society. Students learn to form an ethical vision and develop their own leadership potential as they explore and assess personal values, beliefs, and purpose.

Public Leadership is a community of students from all majors who are committed to developing their leadership skills for the common good. Through small classes and discussions, active learning, and living together in the shared community of Cumberland Hall, the Public Leadership program prepares students with a set of skills that will serve them in every aspect of their adult lives.

For more information see: http://www.publicpolicy.umd.edu/pl.

iGive: Carillon Community

The iGIVE program gives first year students an opportunity to learn about philanthropy, innovation, and social change through rigorous class work and hands-on experience. Through iGIVE, part of the Carillon Community, students live together in Easton Hall and develop camaraderie through hard work, shared interests, and common academic experiences. Over the course of the year, students study theories of philanthropy, design a philanthropic fund, award $10,000 to an area nonprofit, and design their own social action projects. The iGIVE courses are team-based, interactive, and provide an opportunity for students to work on issues they are passionate about. Students complete the year with an understanding of some of the world's most pressing problems and the actions being taken to address them. Most importantly, students will finish their freshman year having practiced social change and energized to use their talents to continue doing good. For more information see: http://carillon.umd.edu.

Specialized Academic Programs

Rawlings Undergraduate Leadership Fellows Program

The prestigious Rawlings Undergraduate Leadership Fellows Program honors the legacy of Howard Peters "Pete" Rawlings and the work he did as a Maryland Delegate. Participants in the Fellows program are provided specialized opportunities to develop as leaders and become champions for those whose voices may otherwise go unheard in the leadership and decision-making process. Maintaining a commitment to those historically underrepresented in leadership positions is central to this program.

Fellows develop community action projects, take courses on leadership, serve at an internship in government or the non-profit sector, and meet both elected officials and non-profit leaders.

For more information: www.publicpolicy.umd.edu/rulf

Financial Assistance

Senator John A. Cade Public Leadership Scholarship

Senator John A. Cade was one of Maryland's most extraordinary and exemplary public servants. As a member of the Maryland Senate from 1975-1996, his dedication to government, public service and education helped enhance the lives of his constituents.

"As much as any legislator, Jack Cade understood that it was education that made a difference. He was a champion for higher education funding throughout his career."
--Senator Thomas V. Mike Miller, Jr.

This scholarship was created to honor the memory of Senator John A. Cade by enabling students to carry on his legacy of public service and leadership.

Eligible candidates must:

- be a current Maryland resident
- be an undergraduate student
- have a 3.0 GPA or higher
- have an interest in public service, government involvement, or political leadership.

For more information: http://www.publicpolicy.umd.edu/cade

Rosalie Reilly Gubernatorial Fellowship

Rosalie Reilly was one of Maryland's most extraordinary and exemplary public servants who was a role model for young leaders as they prepared to enter public life.

This fellowship was created to honor the memory of Ms. Reilly by enabling female students to carry on her legacy of public service and leadership. As a part of the fellowship, students commit to completing a project of significant impact to the community during their fellowship year.

Eligible candidates must:

- be available to serve at least 135 fellowship
- hours have an interest in public service, government involvement, or political leadership
- be a female undergraduate or graduate student
- have a 3.0 GPA or higher

For more information: http://www.publicpolicy.umd.edu/reilly

The Office of Student Financial Aid (OFSA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

THE UNIVERSITIES AT SHADY GROVE

Camille Kendall Academic Center Building III, 301-738-6000
www.shadygrove.umd.edu
shadygrove@umd.edu

9636 Gudelsky Drive Rockville MD 20850
301-738-6000
www.shadygrove.umd.edu

USG Executive Director and Associate Vice Chancellor for Academic Affairs, USM:
Dr. Stewart L. Edelstein

The Universities at Shady Grove (USG) is part of the University System of Maryland and a partner campus of nine Maryland universities that collaborate to offer their top degree programs, as well as certificate and continuing education programs, at one convenient location in Montgomery County. USG currently serves more than 4,000 graduate and undergraduate students, with more than 1,400 undergraduates enrolled in daytime programs.

With coursework beginning at the junior level, USG provides all the prestige and benefits of a Maryland education during a student's final two years of undergraduate study. Most credit earned at Maryland community colleges will transfer, and students can choose from a variety of majors, with classes offered at times that meet their schedules. At the Universities at Shady Grove campus, students work closely with professors from nationally ranked academic programs. Everything you need to be successful as a student can be found on USG's campus, including advising, financial aid assistance, career and internship opportunities, academic support, a library, fitness center, and cafe. Students can also take advantage of a growing number of social events, community service activities and student leadership opportunities.

The University of Maryland, College Park is one of the powerful partners that make up USG. **Students can earn a University of Maryland, College Park degree** at USG and celebrate Terrapin traditions no matter which campus they call home.

The University of Maryland, the Universities at Shady Grove, and Montgomery College have worked together to offer the The Terp Transfer Partnership, which benefits students while they are still enrolled at Montgomery College and creates a seamless pathway to one of the University of Maryland programs offered at the Universities at Shady Grove. Students with at least one semester left at Montgomery College gain early access to advising, workshops, and events related to their University of Maryland program of interest at Shady Grove through the Terp Transfer Partnership program.

The University of Maryland, College Park offers seven undergraduate degrees within five different academic departments at Shady Grove.

B.S. Biological Sciences

B.S. Accounting

B.S. Management with Specialization in Entrepreneurship

B.S. Marketing

B.A. Communication

B.A. Criminology and Criminal Justice

B.S. Public Health Science

Biological Sciences

The Universities at Shady Grove, Building 2, room 4082, 301-738-6007
https://www.shadygrove.umd.edu/academics/degree-programs/bs-biological-sciences

The Major

Biological Sciences at the University of Maryland at the Universities at Shady Grove

The Biological Sciences Program at the University of Maryland offers a degree program in Physiology and Neurobiology (PHNB) at the Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years.

All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. For students matriculating at the Universities at Shady Grove most of these introductory and supporting courses are taken at a community college or at another four-year institution prior to admission to the Biological Sciences Program. Depending on space available, students who matriculated at College Park may transfer to the Shady Grove Program in their junior year, where they may complete the Advanced Program in Physiology and Neurobiology.

Requirements for the Biological Sciences Major in Physiology and Neurobiology (PHNB) at Shady Grove

Courses equivalent to these to be taken at an institution that offers lower level course work

I. General Education Program Requirements

II. Basic Program in Biological Sciences

BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
BSCI223	General Microbiology	4

BSCI222	Principles of Genetics	4
MATH130 **or**	Calculus for Life Sciences I **or**	
MATH140	Calculus I	4
MATH131 **or**	Calculus for Life Sciences II **or**	
MATH141	Calculus II	4
CHEM131/132	General Chemistry I w/Lab	4
CHEM231/232	General Chemistry II w/Lab	4
CHEM241/242	Organic Chemistry II w/ Lab	4
CHEM271/272*	General Chemistry II w/ Lab	4

* CHEM272 Bioanalytical Chemistry Lab is not offered at most institutions. Students accepted into the UMCP Shady Grove Biological Sciences may substitute a General Chemistry II Lab for this course

III. Courses taken at the Universities at Shady Grove

PHYS131	Fundamentals of Physics for Life Sciences I	4
PHYS132	Fundamentals of Physics for Life Sciences II	4
PHNB	Advanced Program in Physiology and Neurobiology	27 minimum
ELECT	Electives	20-25
	Total credits required to graduate	**120**

Advising

Advising is mandatory during each pre-registration period for all Biological Sciences majors. Advising for students interested in or enrolled in the Shady Grove Program is available from the Director. Call 301-738-6007 for an advising appointment.

The Robert H. Smith School of Business

Suite 2022 Building II, 9630 Gudelsky Dr., Rockville, MD, 301-738-6079
http://www.rhsmith.umd.edu/programs/undergraduate-programs/shady-grove

Director of Programs at Shady Grove: Luke Glasgow

College Park Location: 1570 Van Munching Hall, 301-405-2286
Dean: Dr. Alex Trianits
Associate Dean: Dr. Victor Mullins
Assistant Dean of Academic Affairs: Dr. Rebecca Ratner
Assistant Dean: Brian Horick

The Robert H. Smith School of Business is an internationally recognized leader in management education and research for the digital economy. The faculty are scholars, teachers, and professional leaders with a commitment to superior education in business and management, specializing in accounting, finance, information systems, operations management, management

and organization, marketing, logistics, transportation and supply chain management. The Smith School is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting, http://www.aacsb.edu.

The Smith School of Business offers students the opportunity to complete the junior-senior curriculum in three majors at the Shady Grove campus in Rockville, MD including (1) Accounting; (2) Management; and (3) Marketing. For details on the majors offered at Shady Grove visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/shady-grove.

Admission Requirements

All students applying for admission to the Robert H. Smith School of Business as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the Smith School at either the College Park or Shady Grove location. For complete details on admission to the Smith School at Shady Grove visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/shady-grove.

Statement of Policy on Transfer of Credit from Community Colleges

It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution to Shady Grove will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

Other Institutions

The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior-level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

Undergraduate Degree Requirements/Degree Options

Upon completion of all degree requirements, students at the Smith School at Shady Grove will earn a Bachelor of Science (B.S.) degree from the Robert H. Smith School of Business at the University of Maryland College Park. In addition, the Smith School of Business awards Master

of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at www.rhsmith.umd.edu.

Summary of Bachelor of Science Degree Requirements (all curricula)

At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of 58 hours of the required 120 hours must be in 300- or 400-level courses. Fifty percent of the required BMGT credit hours must be completed at the Smith School of Business (College Park or Shady Grove campus). A "C-" or higher is required in all Smith School required courses, and students must have an overall combined 2.000 GPA in Smith required courses. In addition, students are required to have an overall cumulative grade point average of 2.000 (C average) in all university course work.

Freshman-Sophomore School Requirements

BMGT110[1] Introduction to the Business Value Chain (3 credits)
BMGT220 Principles of Accounting I (3 credits)
BMGT221 Principles of Accounting II (3 credits)
ECON200 Principles of Microeconomics (3/4 credits)
ECON201 Principles of Macroeconomics (3/4 credits)

One from: 3/4 credits
MATH120 Elementary Calculus I
MATH130 Calculus I for the Life Sciences
MATH140 Calculus I

One from: 3 credits
BMGT230[2] Business Statistics
BMGT231[3] Statistical Models for Business

One from: 3 credits
COMM100[4] Foundations of Speech Communication
COMM107[4] Speech Communication
COMM200[4] Critical Thinking and Speaking

Total: 24-27

[1] BMGT110 provides a useful introduction to business as an academic program and exposes students to potential career opportunities. As a result, this course best serves students early in their college careers. However, this particular course is redundant for students who have already begun their upper level BMGT coursework and thus, have already received more in-depth exposure to business functions. Therefore this course is only required for students who enter the Smith School as freshmen. Students who transfer to the Smith School and have not completed BMGT110 will not be required to complete this course for graduation.

[2] The following courses are approved substitutes for BMGT230: BIOM301, CCJS200, ECON230, ECON321, EDMS451, GEOG305, PSYC200, and SOCY201.

[3] The following courses are approved substitutes for BMGT231: ENEE324, ENME392, or STAT400.

[4] Any course that fulfills the University's Oral Communication General Education requirement will also satisfy the Smith School's public speaking requirement.

Junior-Senior School Requirements

BMGT301 Introduction to Information Systems (3 credits)
BMGT340 Business Finance (3 credits)
BMGT350 Marketing Principles and Organization (3 credits)
BMGT364 Management and Organizational Theory (3 credits)
BMGT367 Career Search Strategies in Business (1 credit)
BMGT380 Business Law (3 credits)
BMGT495 Business Policies (3 credits)

Total: 19

Economics Requirements 3-6 credits

0-3 credits of approved upper-level economics courses are required by the Smith School of Business. Visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/shady-grove to view the specific requirements for each major offered at the Smith School at Shady Grove.

Major Requirements

In addition to the Smith School of Business Bachelor of Science requirements listed above, generally another 18-24 credits are required for each major. See http://www.rhsmith.umd.edu/programs/undergraduate-programs/shady-grove to view the specific requirements for each major offered at the Smith School at Shady Grove.

Additional Information

For more information on the Smith School of Business undergraduate program at Shady Grove visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/shady-grove.

Communication

5119 Camille Kendall Academic Center (Universities at Shady Grove), 301-738-6208
http://www.comm.umd.edu/
sgcomm@umd.edu

Lindsi Baltz

9636 Gudelsky Drive
Rockville, MD 20750
301-738-6208
http://www.shadygrove.umd.edu/academics/undergraduate/communication/umcp

Chair: S. Parry-Giles
Director: L. Waks
Assistant Director: Lindsi Baltz
Program Manager: Elizabeth Maliakos
Professors: S. Parry-Giles, T. Parry-Giles, A. Wolvin
Associate Professors: L. Aldoory, D. Hample, B. Liu, K. Maddux, S. Khamis
Assistant Professors: N. Joyce, A. Seate
Professional Track Facuty: S. Bae, R. Coleman , A Nixon, J. Tenney
Professors Emeriti: E. Fink, R. Gaines, J. Grunig, L. Grunig, J. Klumpp

The Major at Shady Grove

The department offers an exciting curriculum that prepares students for academic and professional careers in business, government, health, education, social and human services, and related fields. Courses offered by the department include persuasion and social influence, rhetoric and the analysis of messages, communication and new media, digital communication, organizational communication, public relations strategies, and intercultural communication. All students in the program at Shady Grove are required to complete mandatory advising each semester.

Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic work.

2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.

3. An ability to argue clearly and effectively in a speech.

Admission to the Major

Students interested in Communication should have an overall GPA of 2.7 or better, and a grade of "C-" or better in each of the three courses specifically required by the major (COMM250, COMM107, Statistics, or their equivalents). Applicants should also attain junior standing (56 or more transferable college credits) by the time of enrollment. For more information on admission and 1xx or 2xx-level coursework requirements, please visit the Communication web site at http://www.shadygrove.umd.edu/academics/undergraduate/communication/umcp or the Transfer Credit Services website at www.transfercredit.umd.edu. Requirements for the major are as follows:

a. Complete one of the following courses with a grade of "C-" or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, STAT100 or equivalent.

b. Complete COMM107, COMM200, COMM230, or equivalent with a grade of "C-" or better

c. Complete COMM250 or equivalent with a grade of "C-" or better

d. A cumulative GPA of 2.7 or better

Students may repeat only one of the Gateway courses and that may be repeated only once in their attempt to meet the requirements.

Transfer Students

Internal and external transfer students who meet the Gateway requirements specified above and have a cumulative GPA of 2.7 in all college-level coursework may apply to the program.

Appeals

All students may appeal admission decisions. Those students denied admission may appeal to the University's Office of Undergraduate Admissions.

Requirements for the Major

The course of study for a Communication major must satisfy all of the following requirements:

		Credits
COMM107	Oral Communication: Principles and Practices, **OR**	3
COMM200	Critical Thinking and Speaking, **OR**	3
COMM230	Argumentation and Debate	3
COMM250	Introduction to Communication Inquiry	3
COMM400	Research Methods in Communication	3
COMM401	Interpreting Strategic Discourse	3
	Communication Studies Track	

COMM402	Communication Theory and Process	3
	One from:	3
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
	One from:	3
COMM330	Argumentation and Public Policy	
COMM360	The Rhetoric of Black America	
COMM450	Ancient and Medieval Rhetorical Theory	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	
COMM3xx/4xx	3xx or 4xx-Level COMM Electives	12
	One Statistical Analysis from:	3-4
STAT100	Elementary Statistics and Probability	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics or an equivalent course - see advisor	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse or an equivalent course - see advisor	
COURSES	*Communications Studies:* Courses related to Communication Studies in one department other than COMM	9

Notes:

- Because the department's curriculum changes over time, the department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.
- Courses required for the Communication major, but taken outside COMM, may be used to satisfy general education requirements.
- Only 3 credits of COMM386 may apply toward the major.
- No course grade below the grade of "C-" may count toward the major.
- An overall GPA of 2.0 in the major is required for graduation.

Advising

Advising is available throughout the year in the Camille Kendall Academic Center, Suite 5119. Students should check Testudo (http://testudo.umd.edu/) for their registration date and for any mandatory advising blocks.

Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, participating in special team research projects.

Fieldwork Opportunities

To further enhance learning and career training, the department incorporates special hands-on classes such as Health Communication Campaigns, Visual Communication, and Web Design. The department also strongly promotes internship and service learning opportunities with local and state businesses and institutions, and encourages students' participation in student-run clubs.

Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386: *Experiential Learning*, offered each school term.

Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association and the Lambda Pi Eta Honor Society.

Scholarships and Financial Assistance

The department offers the Chaim and Miriam Bentzlovitch Scholarship to students who exhibit academic excellence. Each year the department distributes a call for applications through e-mail.

Criminology and Criminal Justice

5105 Camille Kendall Academic Center, 301-738-6307
http://www.shadygrove.umd.edu/academics/undergraduate/criminology
ccjsusg@umd.edu

Director: Wendy Stickle, Ph.D.

9630 Gudelsky Drive, Room 5105
www.shadygrove.umd.edu/academics/undergraduate/criminology

Chair: J. Lynch
Shady Grove Program Director: W. Stickle, Ph.D.
Lecturers: N. Romeiser, S. Eastman, T. Jordan, T. Alexander, L. Morlier, A. Drew, R. Shusko, J. Conroy, H. Bresee, A. Kaplan, J., Trusty, L. Korossy, E. Pallas

The Major

Criminology and criminal justice encompasses the study of both the causes of, and responses to crime. It involves studying individual, group, and mass behavior, as well as the institutions, professions, and laws that exist to detect, control, and ameliorate the effects of crime. As a discipline, criminology and criminal justice is situated at the nexus of other social science disciplines such as sociology, psychology, and government, in addition to public policy and legal studies.

The University of Maryland, College Park offers its Bachelor of Arts in Criminology & Criminal Justice at the Universities at Shady Grove. Students transfer into this Program after completing their freshman and sophomore years elsewhere, typically at a junior college. Through this Program, students complete their junior- and senior-year coursework at USG with the option to attend full- or part-time. Upon completion of this Program, students are awarded a University of Maryland, College Park B.A. degree.

Program Learning Outcomes

Having completed the CCJS degree program, students should have acquired the following knowledge and skills:

- Students will demonstrate basic knowledge of major criminology and criminal justice content areas.
- Students will demonstrate a basic knowledge of descriptive and inferential statistics appropriate to the social sciences.
- Students will demonstrate competence in basic social science research methods.

The requirements below are in effect for all students who matriculated into the UM system Fall 2015 or later and for students who are currently changing their major to CCJS. Older

requirements for students who declared the major prior to Fall 2017 and matriculated into the UM system prior to Fall 2015 are listed at the end.

The CCJS major is comprised of 36 credit hours of coursework in the CCJS department and either MATH 107 (formerly MATH 111) or STAT 100. A calculus class (MATH 120, 130, or 140) with a grade of C- or higher may be substituted for MATH 107 or STAT 100.

Required CCJS Courses:
CCJS 100 - Introduction to Criminal Justice
CCJS 105 - Introduction to Criminology
CCJS 200 - Statistics for Criminology & Criminal Justice
CCJS 230 - Criminal Law in Action
CCJS 300 - Criminological and Criminal Justice Research Methods

2 CCJS Criminal Justice Courses
(Select two from the following three classes)
CCJS 340 - Policing
CCJS 345- Courts and Sentencing
CCJS 342- Corrections

1 CCJS Criminology/Theory Course
(Select one from the following three classes)
CCJS 450 - Advanced Juvenile Delinquency
CCJS 451 - Crime and Delinquency Prevention
CCJS 454 - Contemporary Criminological Theory

4 CCJS Courses of Choice
Two CCJS Courses of Choice must be at the 400 level
(Completed using one or a combination of the followings ways)

- Complete additional CCJS courses that are not required (i.e., CCJS 325, 360, 418)
- Complete 1 Independent Study for credit (max 3 credits)
- Complete 1 Internship for credit (max 3 credits)

Total CCJS Credits: 36 Credits

Additionally students must complete one of the following math courses for the CCJS LEP gateway requirements:
Choose one of the following:
MATH 107 - Introduction to Math Modeling and Probability (formerly MATH 111)
STAT 100 - Elementary Statistics and Probability
*A calculus class, MATH 120 (formerly MATH 220), 130 or 140, with a grade of C- or higher may be substituted

Total Credits for the CCJS Major: 39 Credits

Please keep the following information in mind:

- No grade lower than a C- may be used toward the major
- Students must achieve a combined grade point average of a 2.0 in the CCJS major

Older CCJS Major Requirements

Older CCJS major requirements are in effect for students who have declared the major prior to Fall 2017 and matriculated into the UM system prior to Fall 2015. Current students are no longer admitted under older CCJS major requirements.

The Criminology and Criminal Justice (CCJS) major is comprised of 33 credit hours of coursework in the CCJS department, either MATH 107 or STAT 100, and 18 credit hours of supporting sequence coursework from outside of the CCJS Department.

Required CCJS Courses:
CCJS 100 - Introduction to Criminal Justice
CCJS 105 - Introduction to Criminology
CCJS 200 - Statistics for Criminology & Criminal Justice
CCJS 230 - Criminal Law in Action
CCJS 300 - Criminological and Criminal Justice Research Methods
CCJS 340 - Policing
CCJS 350 - Juvenile Delinquency
CCJS 451, 452, 454 (Choose one)
451 - Crime and Delinquency Prevention
452 - Treatment of Criminals and Delinquents
454 - Contemporary Criminological Theory

3 CCJS Courses of Choice
(Completed using one or a combination of the followings ways)

- Complete additional CCJS courses that are not required (i.e., CCJS 325, 360, 418)
- Complete an Independent Study (CCJS 399)
- Complete an Internship (CCJS 359 & 398)

Total CCJS Credits: 33 Credits

Additionally students must complete one of the following math courses for the CCJS LEP gateway requirements:
Choose one of the following:
MATH 107- Introduction to Math Modeling and Probability (formerly MATH 111)
STAT 100 - Elementary Statistics and Probability
**A calculus class (MATH 120, 130 or 140) with a grade of C- or higher may be substituted*

Supporting Sequence
(Supporting Sequence courses must be taken off the approved Supporting Sequence list found at

https://ccjs.umd.edu/sites/ccjs.umd.edu/files/supporting_sequence_website.pdf):
3 lower level courses from the approved supporting sequence list found at https://ccjs.umd.edu/sites/ccjs.umd.edu/files/supporting_sequence_website.pdf.
3 upper level courses from the approved supporting sequence list found at ccjs.umd.edu/sites/ccjs.umd.edu/files/supporting_sequence_website.pdf.
Total Supporting Sequence credits: 18 Credits

Total Credits for the CCJS Major: 54 Credits

Please keep the following information in mind:

- No grade lower than a C- may be used toward the major
- Students must achieve a combined grade point average of a 2.0 in supporting sequence courses
- A minimum of 9 hours of Supporting Sequence must be at the 300/400 level

Students must achieve a combined grade point average of a 2.0 in the CCJS major

Other Requirements for the Major

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

Advising

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available by appointment in the Camille Kendall Academic Center (Building III), room 5105. Students must complete all course prerequisites and obtain department permission from the Program Director to enroll in most CCJS classes. Call 301-738-6307 or email ccjsusg@umd.edu.

Internships

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center around gaining new material over the course of the semester and are expected to involve some degree of ongoing training/learning for the intern. Internship placements are subject to the approval of the Internship Director.

Internship Eligibility

Interns must meet the following criteria:

- Interns must be CCJS majors
- Interns must have completed a minimum of 56 credits at the time of application

- Interns must have a cumulative GPA of at least 2.5 at the time of application
- Interns must work 45 hours per credit over the course of the semester
- A maximum of 6 internship credits per semester and a total of 12 internship credits overall will be permitted
- Internship credit will not be approved for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Obtaining Departmental approval for the internship does NOT register the student for the class. Additional information about internships can be picked up from the CCJS advising office in Building III, room 5105.

Student Societies and Professional Organizations

There are two Student Societies available for membership for CCJS majors: the Criminal Justice Student Association (CRIMSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CRIMSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, and community service projects, the CRIMSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. CRIMSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All Universities at Shady Grove students, regardless of home institution or major, are eligible for CRIMSA membership. CRIMSA meetings and programs are held at least monthly during the Fall and Spring semesters.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Undergraduate Applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.4. Graduate student applicants must have a 3.4 overall GPA. Applicants must fill out an application, submit an official or unofficial transcript, and a check (personal check is fine) made out to Alpha Phi Sigma for $55. The local chapter's name is Omega Iota. Completed applications, check, and transcripts should be submitted to Dr. Stickle in Building III, room 5105. Applications are processed throughout the academic year. You will be notified when you have been officially accepted. Applications are available from Dr. stickle or at www.ccjs.umd.edu.

Awards and Recognition

Each year the department selects the outstanding graduating senior for the Peter J. Lejins award. A graduating senior is also selected for the Shady Grove Academic Achievement Award and is eligible to receive the USG Student Leadership Award.

Public Health Science

5127 Building III, 301-738-6181
http://sph.umd.edu/department/phs
mapeter@umd.edu

School of Public Healthâ€¨
Universities at Shady Groveâ€¨
9630 Gudelsky Drive, Bldg III Room 5127â€¨
http://sph.umd.edu/department/phs â€¨
301-738-6181

Director: Stephen Roth, PhD
Assistant Director of Curriculum Development: Jessica O'Hara, PhDâ€¨
Program Coordinator: Emily Nelson

The Major
Public Health Science combines a robust curriculum in the natural sciences with training in the basic fields of public health. The Public Health Science major provides students with interdisciplinary training that is essential to recognizing and addressing public health issues at the state, national and global levels.

With a degree in Public Health Science, students can follow many career paths, from allied health professions to medical school. More specifically, graduates can:

- Pursue degrees in medicine, dentistry, pharmacy, nursing, and allied health professions, such as occupational and physical therapy.
- Continue with graduate work to earn Masters, Ph.D., or MPH degrees in such disciplines as biostatistics and epidemiology, environmental health, health services and policy, as well as behavioral sciences.
- Work in interdisciplinary teams, both governmental and nongovernmental, at the local, state, national, and international levels in disease prevention, environmental protection, and health promotion.

The BS in Public Health Science is offered on both the College Park and Shady Grove campus. At College Park students can enter the program at any time during the college career, while at Shady Grove, students begin their studies with us in their junior year.

Shady Grove Curriculum
The Bachelor of Science in Public Health Science at the Universities at Shady Grove (USG) (http://www.shadygrove.umd.edu/) consists of 120 credit hours, of which 60 are transferred from either a community college or another accredited 4-year institution. The remaining 60 credits are completed at USG and can be completed in 4 full-time semesters or on a part-time basis. Classes are offered Monday through Thursday including some evening classes. All undergraduate coursework at USG begins at the junior level.

Admissions Requirements
To be admitted to the Public Health Science program at USG, students must have
-A cumulative GPA of 2.5 or better for all college level work
-Earned a C- or better in all 100- and 200-level Public Health Science Prerequisite courses (see below.)

It is also strongly recommended that students either earn an Associate of Arts or Science degree from a Maryland state institution **OR** complete all University of Maryland General Education (http://www.gened.umd.edu/) requirements prior to transfer.

Degree Requirements
For full details of degree requirements, please view the Shady Grove curriculum online at: http://sph.umd.edu/department/phssg/shady-grove-curriculum.

Prerequisite Courses (31 credits)
Certain mathematical techniques and scientific principles serve as a foundation for future study in Public Health Science. These courses cover the scientific concepts essential to advanced study in the field and are **prerequisites for admission** to the Public Health Science program at USG. Transfer credit is given based on a review of the syllabus and a determination of its equivalence to the following UMCP courses. To determine the equivalent course at your current institution please visit the UMD Transfer Credit Database (https://ntst.umd.edu/tce/).

COURSE ID	COURSE TITLE	COURSE CREDIT
*	Foundation in Behavioral and Social Science	3
MATH120	Elementary Calculus I	3
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI201	Human Anatomy and Physiology I	4
BSCI202	Human Anatomy and Physiology II	4
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/General Chemistry I Lab	3/1
CHEM231/232 **OR** CHEM105	Organic Chemistry I/Organic Chemistry I Lab **OR** Essentials of Organic and Biochemistry	3/1
BSCI222	Principles of Genetics	4
BSCI223	General Microbiology	4

*Courses that satisfy the Foundation in Behavioral and Social Science include: Introduction to Public and Community Health (HLTH130), Introduction to Health Behaviors (HLTH230), Anthropology (ANTH260), Sociology (SOCY100 or SOCY105), or Psychology (PSYC100).

Public Health Science Foundation Courses (31 credits)
In addition to the scientific foundation courses, the major also studies discipline specific courses

that lead to advanced study in the field. These courses include, but are not limited to, the five core disciplines of public health (behavioral science, biostatistics, epidemiology, environmental health, and health services administration) as well as kinesiology and are instructed through the following:

COURSE ID	COURSE TITLE	COURSE CREDIT
HLTH366	Behavioral and Community Issues in Public Health	3
PHSC401	History of Public Health	3
MIEH300	Introduction to Environmental Health	3
MIEH400	Introduction to Global Health	3
KNES360	Exercise Physiology of Exercise	4
HLSA300	Introduction to Health Policy and Services	3
EPIB300	Biostatistics for Public Health Practice	3
EPIB301	Epidemiology for Public Health Practice	3
PHSC415	Essentials of Public Health Biology: The Cell, The Individual, and Disease	3
SPHL409	Social, Political, and Ethical Issues in Public Health	3

Public Health Science Options (12 Credits)
The Public Health Science option courses build upon the Scientific and Public Health Science Foundation courses. The option courses are 300 and 400 level courses offered within the major. By choosing from these courses, students have an opportunity to customize their program. Students are encouraged to specifically choose courses that best align with a particular career goal.

OFFICE OF UNDERGRADUATE STUDIES (UGST)

2110 Marie Mount Hall, 301-405-9363
www.ugst.umd.edu
ugst@umd.edu

Associate Provost and Dean: William A. Cohen
Director of Administration and External Relations: Jacqueline Kautzer
Director of Development and Alumni Relations: Heidi Bruce
Associate Dean for General Education: Douglas Roberts
Associate Dean: Cynthia Kay Stevens
Assistant Deans: Deborah Reid Bryant, Lisa Kiely, Kathryn Robinson, Ann Smith
Director of Communications and Web Development: Mark Kuhn

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the university, and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of

Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education. The responsibilities of Undergraduate Studies include:

- Living-learning programs
- Academic enrichment programs
- Interdisciplinary and individual studies programs
- Academic advising policy and assessment
- General Education
- Academic planning and policy
- Enrollment management
- University learning outcomes assessment

Academic Achievement Programs

2204 Marie Mount Hall, 301-405-4736
www.aap.umd.edu
Executive Director: Dr. Jerry L. Lewis

The Academic Achievement Programs (AAP) primarily serves traditionally under-represented and low-income and first-generation college students. Academic support, skill enhancement, academic advising and counseling, and tutoring are provided for these populations and for students with disabilities. Academic Achievement Programs include the Intensive Educational Development (IED), Educational Opportunity Center (EOC), the Ronald E. McNair Post-Baccalaureate Achievement Program (McNair), the Summer Transitional Program, and Student Support Services (SSS). EOC, McNair, and SSS, are part of the Federal TRIO programs and are funded by the U.S. Department of Education to promote access, provide support services, motivate, and traditionally underrepresented students for retention in and graduation from undergraduate programs and to prepare for doctoral programs.

Educational Opportunity Center (EOC)

Dr. Marcal Graham, Associate Director
301-429-5933

UM-EOC is supported by a U.S. Department of Education grant designed to assist persons 19 and older, low-income, and first-generation in pursuing post-secondary educational opportunities. UM-EOC serves primarily Inner-Beltway communities in Prince George's County and provides assistance in the application process for admission to and financial aid for post-secondary education. Specific guidance is given in selecting colleges, completing the FAFSA, and promoting post-secondary education for target populations. EOC also works with high school seniors in some Prince George's County High Schools.

Summer Transitional Program (STP)

Dr. Tilahun Beyene, Director, IED and Associate Director, AAP
301-405-4739

The Summer Transitional Program (STP) assists students in both their academic and personal adjustment to the University. It includes very intensive skills enhancement in math, English, and college study strategies, coupled with enrollment in a selected three-credit university course with tutoring to facilitate students' academic adjustment. In addition, students enroll in a one-credit orientation course and participate in weekly individual and/or group counseling sessions. The six-week STP is required of all students admitted to the University through SSS/IED.

Intensive Educational Development (IED)

Dr. Tilahun Beyene, Director, IED and Associate Director, AAP
301-405-4739

IED provides an array of intensive academic and tutorial services to first-year and second-year students who participate in the Summer Transitional Program (STP), eligible first- and second-year transfer students, and other eligible students who seek academic support. The IED program begins with the STP; prospective students who are admitted to the University through the IED program are required to attend this six-week transitional program. Successful completion of the STP is required for admission to the University. Admitted students continue to receive program services throughout their undergraduate career at the University.

Student Support Services (SSS)

Dr. Jerry L. Lewis, Director
301-405-4736

SSS is a U.S. Department of Education grant supported program geared toward low-income and first-generation college students. It works in conjunction with the IED Program focusing much of its support to first- and second- year students. SSS provides academic and career advising, tutoring, stress management, and study-skill and test-taking support to eligible low-income and first-generation undergraduate students throughout their time at the University. The SSS program also provides financial aid workshops and assistance, individual and group counseling, and leadership development workshops. In limited cases, SSS provides supplemental grant aid to eligible participants in the program.

Ronald E. McNair Post-Baccalaureate Achievement Program

Dr. Rhea Roper Nedd, Associate Director
301-405-4749

The McNair Post-Baccalaureate Achievement Program (McNair Program) is funded and designed principally to prepare low-income, first-generation college juniors and seniors and/or

students from traditionally underrepresented groups to matriculate and retain in graduate programs and earn doctoral degrees. The McNair Program is a year round commitment that consists of monthly workshops during the academic year and a six-week summer research experience that affords McNair Scholars the opportunity to work intimately with faculty mentors on specific research projects. McNair Scholars are required to complete a research abstract/paper for publication, and receive financial support towards presenting their research at conferences. The McNair Program offers instructional courses and workshops, as well as expert training and advice on written and oral communication skills, research methodologies, the preparation of compelling personal statements, admission and financial aid applications, and graduate school admission tests. "Whether or not you reach your goals in life depends entirely on how well you prepare for them and how badly you want them" and the McNair Program is committed to providing services to best equip students with a skill set that leads to the successful completion of doctoral degrees (Dr. Ronald E. McNair).

Educational Talent Search Programs North and Central

Ms. Bridget Brandon, Associate Director Talent Search North

Mr. Cameron Poles, Associate Director Talent Search Central

301-429-5933

Educational Talent Search programs (ETS) are federally funded by the Department of Education to serve a total of 1,000 students from targeted Prince Georges' County schools. ETS is designed to identify academically talented and promising college students who are in the ninth and tenth grades and are highly likely candidates for competitive higher educational institutions admission/enrollment across the United States. The programs provide guidance, academic advising, coaching, tutoring, parent involvement training/support through high school and assistance with the college enrollment and financial aid process.

Academic Common Market

2110 Marie Mount Hall, 301-405-9363
http://www.ugst.umd.edu/acmnotice.pdf
Dawn Simounet, Coordinator

SPECIAL NOTICE

August 23, 2012
(Updated April 12, 2014)

The University of Maryland, College Park has discontinued participation in the Academic Common Market.

The last ACM certifications the University of Maryland, College Park accepted were those specifying spring 2013 as the first term of enrollment in the certified major. The University

of Maryland, College Park will not accept ACM certifications for later semesters. Only students with ACM certifications for spring 2013 or earlier semesters and who enroll in the certified program at UMD in their ACM certified semester may continue to receive the ACM in-state tuition benefit.

Transition Plans

Fall 2012 and earlier:

Undergraduate students approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of fall 2012 or earlier may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress toward the degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

Undergraduate students admitted for fall 2012 who deferred their admission to spring 2013 or fall 2013 will be treated according to the rules for undergraduate students admitted fall 2012. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress toward the degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.
Graduate students approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of fall 2012 or earlier may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the graduate degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified program.

Graduate students admitted for fall 2012 who deferred their admission to spring 2013 or fall 2013 will be treated according to the rules for graduate students admitted fall 2012. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the degree. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

Spring 2013:

Undergraduate students, who receive ACM certification for spring 2013 and who are admitted to and enrolled in their approved ACM inventory majors for spring 2013, may receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress

toward the degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

Undergraduate students admitted for spring 2013 who deferred their admission to fall 2013 or spring 2014 will be treated according to the rules for undergraduate students admitted spring 2013. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 2.0 overall grade point average, and satisfactory progress toward the degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

Graduate students, who receive ACM certification for spring 2013 and who are admitted to and enrolled in their approved ACM inventory majors for spring 2013, may receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the graduate degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified program.

Graduate students admitted for spring 2013 who deferred their admission to fall 2013 or spring 2014 will be treated according to the rules for undergraduate students admitted spring 2013. They must be approved for participation in an Academic Common Market (ACM) major and enrolled in their certified majors as of the semester to which they deferred. They may continue to receive benefits as long as they are continuously enrolled full time in the ACM approved major, maintain permanent residency in their certifying state, a 3.0 overall grade point average, and satisfactory progress toward the degree. Students may not pursue multiple degrees while receiving ACM benefits. Benefits will not exceed six (6) years beginning in the first term of enrollment in the ACM certified major.

Air Force Reserve Officer Training Corps (AFROTC)

0121 Reckord Armory, 301-314-3242
www.afrotc.umd.edu
afrotcdet330@umd.edu

Director: Colonel David Morrissey

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate or graduate degree. It is highly recommended that students seeking a commission contact the AFROTC department for full program details before registering for classes.

Program Requirements

AFROTC is designed to be a 4-year experience, but the schedule can be compressed (minimum of 3 years) for qualified candidates. A full four-year program is composed of the two-year General Military Course (GMC) and the two-year Professional Officer Course (POC). GMC students receive an introduction to the Air Force and various career fields, and may have a chance to compete for scholarships. Non-scholarship GMC students incur no military service obligation and may elect to discontinue the program at any time. Students wishing to continue in the POC must pass all cadet standards by their last semester in the GMC, successfully compete for acceptance into summer field training course, and complete field training. POC students concentrate on the development of leadership skills and the study of United States defense policy. Additionally, all POC students receive a monthly allowance of $450-$500.

Scholarships and Incentives

If the Air Force is offering scholarships, members of AFROTC in all degree programs are eligible to compete for scholarships based on a competitive selection process. Scholarship recipients receive money for tuition up to $18,000 per year, a book allowance (currently $600/year), and a monthly allowance from $300 to $500, depending on the student's AFROTC year.

Army Reserve Officer Training Corps (ROTC)

2100 Reckord Armory, 301-314-9939
www.armyrotc.umd.edu
armyrotc@umd.edu

Director: Lieutenant Colonel Larry Rentz

The Army Reserve Officer Training Corps offers students the opportunity to develop leadership skills plus earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

Four-Year Program

The four-year program is composed of the Basic Leadership Course and the Advanced Leadership Course. The first two years (Basic Course) consist of a general introduction to military customs and courtesy, soldier skills, communication skills, personal development, and introductory leadership skills. Students enrolled in the Basic Course *incur no obligation* and *may discontinue the program at any time*. In the final two years (Advanced Course), students concentrate on developing leadership skills in organizations. Students must have permission of the Director of Army ROTC to enroll in the advanced course. The Advanced Course requires four weeks of field training at Fort Knox, Kentucky (Advanced Camp) the summer after their junior year.

Two-Year Program

The two-year program is available to students with two years remaining in their university studies. The academic requirements for this program are identical to the Advanced Course in the four-year program, and students are eligible to receive the same benefits. Prerequisites for the Advanced Course must be fulfilled prior to enrollment. The following options exist to help students fulfill Basic Course requirements before enrolling in the Advanced Course:

1. Basic Camp: Students may attend a five week adventure challenge course at Fort Knox, Kentucky. Students should start the application process for this option no later than January of their sophomore year.

2. Veterans: Students with prior military service.

3. Basic Training: Constructive credit will be awarded for students who have completed Basic Training prior to starting their junior year.

4. JROTC: Students who completed 3-4 years of JROTC in High School.

5. Service Academy or Senior ROTC: Two year attendance at a service academy or successful completion of two years in a sister service Senior ROTC training can qualify for constructive credit.

Scholarships and Incentives

Army ROTC Scholarships are available for four, three or two years on a competitive basis. The scholarships are based solely on merit, not financial need. Scholarship awardees may apply benefits for either Room and Board or Tuition and Mandatory Fees. An additional book allowance ($1,200 a year) and a non-taxable monthly stipend ranging from $300-$500 based on academic year is extended to students.

Army ROTC students/cadets may compete for summer training opportunities to include Airborne, Air Assault, Sapper School, Combat Diver Qualification, or Northern Warfare Training during the summer and winter breaks. Additionally, students/cadets may compete for summer abroad opportunities. Previous Army ROTC cadets have completed summer abroad in Brazil, Greece, India, Morocco, Panama, Slovakia, and Estonia (to name a few).

Curriculum

Basic Leadership Course
Freshman Year: ARMY106 (Fall) ARMY105 (Spring)
Sophomore Year: ARMY201 (Fall) ARMY202 (Spring)

Advanced Leadership Course
Junior Year: ARMY301 (Fall) ARMY302 (Spring)
Senior Year: ARMY401 (Fall) ARMY402 (Spring)

Military History

Cadets must complete an approved course in Military History prior to graduation

All ROTC classes are *open to any student* for college credit, whether or not he or she is considered a cadet in the Army ROTC program. Students who complete the Advanced Course requirements (ARMY301,302,401,402 and Military History) may be conferred a Minor in Leadership Studies.

Asian American Studies Program (AAST)

2117 Susquehanna Hall, 301-405-0996
www.aast.umd.edu
aast@umd.edu

Director: Janelle Wong, Ph.D.

In the Asian American Studies Program (AAST), students undertake an interdisciplinary and critical study of race, immigration, and political and social representation through examination of the experiences of Asian Americans. Students study the experiences of Asian Americans compared to and connected with other groups in the United States, as well as situated within a global and transnational context. Through this approach, students examine the histories, communities and cultures of Asian Americans as both distinctive and connected to the broader themes for diversity, ethnicity, race, gender, sexual orientation and migration in the Americas. AAST offers a 15 credit-hour minor. For the minor, courses may be cross-listed in other departments and some may satisfy general education requirements.

Minor Requirements:

A. AAST FOUNDATIONAL COURSE (3 credits)
1. Introduction to Asian American Studies (AAST200/AMST298C)

OR

2. Asian American History (AAST201/HIST221/HIST219M/HIST219G)

B. ELECTIVE COURSES (9 credits)

Three (3) additional AAST or other approved courses, two of which must be upper division and one of which must be comparative ethnic or global/transnational/international (see courses below with an asterisk*). Students may take a course not on this list with approval of the AAST Director. The following list of regular and special topics include:

AAST200 Introduction to Asian American Studies

AAST201 Asian American History

AAST223 Introduction to Asian American Literature

AAST222/HIST222 Immigration and Ethnicity in the United States

AAST443 Asian American Politics

AAST378 Experiential Learning

AAST388 Independent Research

AAST498M Asian American Public Policy

AAST498I Asian American Leadership

AAST498G Asian American Women and Gender

AAST498O Asian American Health

*THET498D Special Topics in Theatre History from 1800 to Present: Asian American Theatre

*AAST498B Confucius' Many Lives in East Asia and Asian America

*AASP499T Advanced Topics in Public Policy and the Black Community: Race, Poverty, Violence, and the Juvenile Justice System: A Theoretical and Contextual Analysis of Social Capital

*AASP202H Black Culture in the United States

*USLT498B Special Topics: Latinas/os and US Popular Culture

*USLT498B Special Topics: Latinas/os and Racial Formation

*EALL300 The Languages of East Asia

*ARTH290 Art and Society in Asia

*AAST498W/AMST498R Selected Topics in American Studies: Transnational American Studies

*ARTH489F Special Topics in Art History: Modern Chinese Film and Visual Culture

*ENGL428Y Seminar in Language and Literature: Authors of the Early Black Atlantic

*USLT202 Overview US Latino/a Studies

*PSYC354 Cross-Cultural Psychology

*300-Level Asian language course (only 1 language class can count toward AAST minor)

C. UPPER DIVISION COURSES (3 credits)

AAST 499 Senior Thesis. Prerequisite: AAST200 or AAST201. This advanced colloquium in Asian American Studies is designed as a senior seminar. The course offers an intensive learning experience and students are required to complete a thesis, applied research project, or take part in and write about a sustained community experience.

OR

One additional 400-level AAST course

Beyond the Classroom

1104 South Campus Commons, Building 1, 301-314-6622
www.BeyondTheClassroom.umd.edu
btcinfo@umd.edu

Director: James V. Riker

Beyond the Classroom (BTC) is an interdisciplinary living-learning program that prepares students to be active and responsible citizens and leaders in a complex, multi-cultural, and global society. Students develop the educational and professional leadership skills to understand and to contribute constructively to civic engagement and social change in a global context. Students address significant civic and social issues through exciting internship, community service, and civic learning experiences with nonprofit, nongovernmental and civil society organizations in the greater Washington, D.C. metropolitan area. Through its integrated academic, experiential, and service components that offer students real-world learning opportunities outside the classroom, BTC enables students from all disciplines and majors to develop and to realize their potential for civic leadership at the local, national and global levels. BTC is a three-semester program open to all sophomores, juniors, and seniors.

Carillon Communities

2110 Marie Mount Hall, 301-314-6620
www.carillon.umd.edu
carillon@umd.edu

Coordinator: Melissa Del Rios

Carillon Communities is a one year living and learning option for first-year students who want to accelerate their engagement with the University. Each of the communities is anchored by a 3 credit I-Series course and a 1 credit Carillon Studio. Students invited into the program have the

opportunity to choose from among three options under the Carillon Communities umbrella: Engaging Cultures, iGive, and Once and Future Planet. The admission process for this opportunity is managed by the Admissions Office.

College Park Scholars Program (CPSP)

1125 Cumberland Hall, 301-314-2777
www.scholars.umd.edu
askcpscholars@umd.edu

Executive Director: Marilee Lindemann, PhD

College Park Scholars is a nationally acclaimed living and learning program that offers outstanding students the interpersonal benefits of a small college paired with the intellectual advantages of a major research university. Each of its 12, two-year programs for freshmen and sophomores provides a close-knit community and a challenging, interdisciplinary academic experience. Students attend weekly, faculty-led colloquia that encourage active discussion and debate. Other courses in the curriculum satisfy General Education requirements. In the second semester of their sophomore year, students choose from independent research, service-learning projects, or internships -- both on- and off-campus -- to satisfy their Scholars practicum requirement.

The Programs' focus on community offers many advantages. Program faculty maintain offices in Cambridge Community residence halls which facilitates meeting with students. Several program faculty lead study-abroad experiences during the winter term or summer semester. Living together in the residence halls helps students form study groups for common courses. Scholars also engage with guest speakers and have the opportunity to continue conversations outside the classroom. Program directors encourage students to pursue leadership opportunities in co-curricular activities, design and implement community service and social events, participate in mentoring programs (http://scholars.umd.edu/student-life/student-groups/peer-mentors), recruitment activities (http://scholars.umd.edu/student-life/student-groups/scholars-ambassadors) or serve on the Student Advisory Board (http://scholars.umd.edu/student-life/student-groups/student-advisory-board).

Upon successful completion of the program, students earn an academic Citation (requirements vary by program, http://scholars.umd.edu/citation-requirements). In their junior year, students are encouraged to build on their Scholars experiences by participating in departmental honors programs and other research and internship opportunities.

Admission to College Park Scholars is selective and by invitation. Upon invitation to College Park Scholars, students indicate their preference from the following programs:

Arts (http://www.scholars.umd.edu/programs/arts)

Business, Society and the Economy (http://www.scholars.umd.edu/programs/bse)

Environment, Technology and Economy (http://www.scholars.umd.edu/programs/ete)

Global Public Health (http://www.scholars.umd.edu/programs/gph)

International Studies (http://www.scholars.umd.edu/programs/is)

Justice and Legal Thought (http://www.scholars.umd.edu/programs/jlt)

Life Sciences (http://www.scholars.umd.edu/programs/ls)

Media, Self and Society (http://www.scholars.umd.edu/programs/mss)

Public Leadership (http://www.scholars.umd.edu/programs/pl)

Science, Discovery and the Universe (http://www.scholars.umd.edu/programs/sdu)

Science and Global Change (http://www.scholars.umd.edu/programs/sgc)

Science, Technology and Society (http://www.scholars.umd.edu/programs/sts)

Federal Fellows Program

2407 Marie Mount Hall, 301-314-0261
www.federalfellows.umd.edu
federalfellows@umd.edu

Director: Dr. Joan Burton

The Federal Fellows Program is a selective, yearlong program offered within the Office of Undergraduate Studies, in conjunction with other colleges, programs and campus initiatives. The program brings together students from all disciplines to learn, discuss, and explore issues related to federal policy, and galvanizes them toward public service careers. Rising sophomores, juniors, and seniors with strong academic backgrounds and an interest in exploring the possibility of public service are encouraged to apply.

Students who successfully complete all program requirements will earn a "Federal Fellows" notation on their transcript.

The Federal Fellows Program consists of three primary components:

1. The Federal Fellows Seminar: FGSM320, 330, or 340 (3 credits, fall semester). A choice of seminar courses, each focused on a specific theme (for example, public health policy, homeland security policy, or energy and environmental policy). The seminars benefit from the diversity of students who participate in the program. The small setting allows students to bring knowledge from their disciplinary focus into the discussion. Taught by expert practitioners, the seminars examine the policy-making process and discuss vital

current issues within each theme. Guest speakers provide real-world perspectives on how governments and other actors create and implement policy.
2. The Internship: FGSM398 (3-9 credits, spring semester). The Federal Fellows experiential learning course offers credit for an internship with a federal agency or related organization (including the White House, NGOs, etc.). In class, students work on professional development and reflect on their internship experiences through journal assignments. With permission, students may complete the internship under the course number for internships in the student's major or other programs.
3. Supporting course work: Two regular UM courses, approved by the Federal Fellows program, that complement the Federal Fellows mission (6 credits). With permission, students may apply courses completed prior to the Federal Fellows year.

Students also participate in Federal Fellows Program activities including visits to Capitol Hill and federal agencies, conversations with leaders in public policy, professional development workshops, one-on-one advising check-ins, and an end-of-the-year reception. The program offers a lively, engaged community of students and supportive alumni.

Students in the program must have completed 45 credits by the end of the semester in which they apply and have a grade point average of 3.0 or higher. For details and application please see www.federalsemester.umd.edu.

First Year Book Program

Office of the Dean for Undergraduate Studies
2110 Marie Mount Hall
www.firstyearbook.umd.edu
Director: Lisa Kiely

Each year since 1993, the University has selected a book for all first year students. The goal of the First Year Book Program (FYB) is to provide a shared intellectual experience for all new students along with the opportunity to discuss the book from a variety of disciplines. Courses, departmental lectures, living/learning programs, and student groups all sponsor events that complement a major address by the author and/or other important visitors to campus.

General Education

2100 Marie Mount Hall, 301-405-9363
Contact: Douglas Roberts, Associate Dean for General Education

General Education

To earn a baccalaureate at the University of Maryland all students complete both a major course of study and a campus-wide general education program. For more information, see Chapter 5, General Education.

General Education@umd
www.gened.umd.edu
gened@umd.edu

CORE Liberal Arts and Sciences Program
www.ugst.umd.edu/core

Global Fellows in Washington DC Program

2407 Marie Mount Hall, 301-314-0261
www.globalfellowsdc.umd.edu
globalfellowsdc@umd.edu

Director: Dr. Joan Burton

The Global Fellows in Washington, D.C. Program is an innovative internship program designed to equip undergraduate students of all majors with the knowledge, skills, and experience to become leaders in an increasingly globalized society. The aim is to increase student involvement in and access to opportunities within the global arena. The program combines a fall academic seminar on global leadership and policy related to a specific theme with a spring internship experience in the Washington, D.C. area. Classes bring students in contact with professionals who share their knowledge, expertise, and perspectives. The spring internship placements are with international organizations, federal agencies, foreign embassies, NGOs, and non-profit organizations. The program is open to students from all majors. Rising sophomores, juniors, and seniors with strong academic backgrounds and an interest in the global arena are encouraged to apply. The program offers a lively, engaged community of students and supportive alumni. Global Fellows in Washington, DC is a program of the Office of Undergraduate Studies in collaboration with the Office of International Affairs and the College of Behavioral and Social Sciences, with stakeholders and supporters across the University. The program is designed to support students of all majors and colleges.

Students who successfully complete all program requirements will earn a "Global Semester DC Fellow" notation on their transcript.

The Global Fellows in Washington, D.C. Program consists of four primary components:

1. The Global Fellows in Washington, D.C. Seminar: FGSM350, 360, 370, or 380 (3 credits, fall semester). Students in the program choose from several seminar courses based in global leadership and policy and designed especially for program participants. The courses are taught by expert practitioners and provide a deep understanding of global leadership and policy related to a specific theme. Guest speakers offer additional real-world and professional perspectives.
2. The Internship: FGSM398 (3-9 credits, spring semester). The experiential internship course offered by the Global Fellows in Washington, D.C. Program enables students to earn credits for their professional experience in the global arena. Students registering for FGSM398 will provide signed confirmation of an internship position, submit guided

journal entries, and complete a final reflective report on their internship experience. (Important note: Students may substitute another departmental internship course, offered in the student's major or elsewhere at the University, for FGSM398 in the Global Fellows in Washington, D.C. Program.)

3. Supporting course work: To round out the Global Fellows experience, two additional UMD courses, approved by the Global Fellows program, are required of students participating in the program. These courses complement the fall seminar and spring internship by providing greater depth and context to the academic experience (6 credits). With permission, courses completed prior to beginning the program may be used to satisfy this requirement.
4. Supplemental Activities: Throughout the year, students attend workshops and roundtable discussions and participate in off-campus activities, including visits to Capitol Hill and federal agencies, to learn more about real-world applications. Program staff offer one-on-one consultations regarding cover letters, resumes, and interviews.

Minimum requirements: Students in the program must have completed 45 credits by the end of the semester in which they apply and have a cumulative grade point average of 3.0 or higher. For further details and application see www.globalfellowsdc.umd.edu.

Global Studies

The Global Studies Minor Program provides opportunities for students from any discipline or major to study how evolving global connections affect the well-being of people throughout the world. Students in this interdisciplinary program develop an understanding and appreciation of how and why interactions across national and ethnic borders are shaped by language, culture, politics, economic development, and conflict.

The program is comprised of a number of specialization tracks which address issues from the perspective of different disciplines. The tracks are:

- International Development and Conflict Management (http://www.globalstudies.umd.edu/)
- International Engineering (http://www.ilp.umd.edu/coursework)
- Global Poverty (http://arec.umd.edu/undergraduate/minors/global-poverty)
- Global Terrorism (http://www.start.umd.edu/)

All students choose one course from a set of "signature" courses outside of their chosen track for exposure to major global issues addressed by the other Global Studies Minors. The minors provide an opportunity for an experiential component within a student's elective courses, including a study abroad experience. The Global Studies Minor Program includes special activities that involve students across the minors, such as special speaker forums, participation in major events, and experiences in Washington, D.C.

Honors College

Anne Arundel Hall, 301-405-6771
www.honors.umd.edu
honors@umd.edu

Executive Director: Susan Dwyer

The Honors College (http://www.honors.umd.edu/), a vibrant and diverse intellectual community on the doorstep of the nation's capital, engages the University of Maryland's highest achieving undergraduates by providing academic challenges and boundless opportunities for discovery, setting them on paths to extraordinary futures. Small classes and outstanding teachers encourage discussion and foster innovative thinking across academic disciplines. Honors students have exclusive access to Honors living-learning program courses, Honors seminars, and Honors versions of courses offered by the academic departments on campus.

Students in the Honors College may earn an Honors College Citation on the transcript by completing coursework and satisfying all requirements in an Honors Living-Learning Program (http://www.honors.umd.edu/livinglearningprograms.html). Honors Living-Learning Programs include: University Honors (http://www.universityhonors.umd.edu/), Gemstone (http://www.gemstone.umd.edu/), ACES (http://www.aces.umd.edu/), Design Cultures & Creativity (http://dcc.umd.edu/), Entrepreneurship and Innovation (http://www.eip.umd.edu/), Honors Humanities (http://www.honorshumanities.umd.edu/), and Integrated Life Sciences (http://www.ils.umd.edu/). Acceptance of first-year students into the Honors College is competitive and by invitation based on the standard application to the University of Maryland (by November 1st for best consideration for Honors College and merit scholarships).

In addition to joining an Honors College Living-Learning Program, Honors students may apply to one of 40 Departmental Honors Programs (http://www.honors.umd.edu/departmentalhonors.html) offered by the academic departments and colleges on campus to take full advantage of advanced, discipline-based Honors coursework and research opportunities in their major area of study. Most departmental honors programs begin in the sophomore or junior year. Students in a Departmental Honors Program may earn departmental honors on the transcript and diploma.

Individual Studies Program

2407 Marie Mount Hall, 301-314-0023
www.ivsp.umd.edu
individualstudies@umd.edu

Director: Dr. Joan Burton

The Individual Studies Program (IVSP) is a degree-granting academic program administered through the Office of Undergraduate Studies. The program enables students to design their own interdisciplinary majors leading to the Bachelor of Arts or Bachelor of Science degree. Students

draw primarily from the University of Maryland's course offerings to form an academic concentration not otherwise available to them at the institution. A written proposal defining the student's major and outlining the curriculum is required to apply to the program. Recent individually-created student majors have included such titles as Global Health, Civic Engagement and Media, Design and the Built Environment, Global Economic Development, Middle Eastern Studies, Immigration and Ethnic Studies, Neuroscience, Maternal and Child Health, Environmental Business, Medieval Studies, Modern Ethnomusicology, and Urban Planning and Renewal. The program provides a supportive community of highly engaged and self-motivated students, alumni, and staff.

Students must seek the guidance and approval of a Faculty Mentor prior to having their proposal reviewed by the Individual Studies Faculty Review Board. If approved, the courses agreed upon by the Faculty Review Board become the basis for the student's major requirements. These listed requirements from numerous academic departments, along with the general education requirements, are analogous to the academic requirements given to students who select from the University's traditional majors. However, each student is required to design a unique program of study and defend it in order to be a part of IVSP.

Individual Studies students must complete a senior capstone project and are encouraged to engage in internships, research projects, independent studies, and study abroad to supplement their work in the classroom. Drawing from real-world experience as a supplement to the academic curriculum is generally encouraged. Such projects often serve as a way for students to develop academic connections among the multiple disciplines involved in their programs.

While IVSP allows students the opportunity to create a unique academic program focused on a specific area of study, using courses from multiple academic departments, it does not substitute for or replicate the educational goals of existing University programs, including the Limited Enrollment Programs (LEPs). IVSP programs may not include substantial numbers of courses from LEP departments.

Developing a successful IVSP proposal takes time and involves several meetings to review and edit the draft proposal. Ideally, interested students should contact the IVSP staff and begin the application process early in their academic career. Working closely with the IVSP staff and their prospective Faculty Mentor, students should plan to complete and submit their IVSP proposal, preferably during their sophomore year or in their junior year before reaching 90 credits.

To be admitted into the Individual Studies Program, the student must:

1. Have a clearly defined academic goal that cannot be reasonably satisfied in an existing curriculum at the University of Maryland, College Park.

2. Have at least 30 earned college credits with at least 12 credits completed at College Park.

3. Have a minimum of a 2.5 GPA in each of their previous two semesters of college and at least a 2.0 GPA overall.

4. Complete at least 30 additional credits beginning the term following admission to IVSP.

5. Identify an appropriate faculty mentor, preferably tenured or tenure track, with significant undergraduate education experience related to the field of study.

6. Complete a detailed plan of study (proposal) that is approved by their Faculty Mentor and then approved by the Individual Studies Faculty Review Board. This proposal will include:

a. A clear statement of the central academic purpose for their major.

b. Specific course requirements including at least 27 credits of upper-division major coursework (300- and 400-level) beyond the IVSP courses (IVSP317, IVSP318, and IVSP420).

c. The list of courses must include at least one Writing Craft course (in addition to the CORE Fundamental Studies Academic Writing and the Professional Writing requirements) selected from an approved list that is available from the Individual Studies staff.

d. A semester-by-semester plan for the completion of their undergraduate degree within a reasonable period of time.

Following admission, students must:

1. Earn a grade of "C-" or better in all courses required in their IVSP program of study, including IVSP420 as well as a satisfactory grade in IVSP317.
2. Complete mandatory advising sessions with their Faculty Mentor and the IVSP staff every semester, including a review of their semester-by-semester academic plan for completion of their IVSP program.
3. If not already completed, work towards immediate completion of the Fundamental Studies requirements.

For details and further information, you may visit the IVSP website at www.ivsp.umd.edu, Students are also encouraged to visit the program office at 2407 Marie Mount Hall.

Letters and Sciences

1117 Hornbake Library, 301-314-8418
www.ltsc.umd.edu
askltsc@umd.edu

Assistant Dean/Director: Deborah Reid Bryant, Ph. D.

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program. Letters and Sciences advisors help students to select and schedule courses, plan

academic programs, and learn about campus-wide resources. Letters and Sciences collaborates closely with college advising offices, academic departments, and programs across campus and provides a coordinated advising network that features:

Choosing a Major
Letters and Sciences students receive information about and referral to a wide range of academic programs and services including specialized workshop sessions. Letters and Sciences staff specialize in assisting students to develop strategies and plans for entering Limited Enrollment Programs.

Business Exploration Series
The Letters and Sciences *Business Exploration Series* (BES) is a multidimensional advising resource that provides LTSC students with an opportunity to explore the world of business through: exploratory seminars; business focused introduction to the University courses; valuable leadership opportunities; and access to guidance and support from knowledgeable advisors.

S.T.E.M. Exploration Series
The Letters and Sciences *S.T.E.M. Exploration Series* (SES) is a multidimensional advising resource that provides LTSC students with an opportunity to explore the world of Science, Technology, Engineering, and Mathematics through: exploratory seminars; S.T.E.M. focused introduction to the University courses; valuable research and leadership opportunities; and access to guidance and support from knowledgeable advisors.

Interim Advising Program
Newly admitted transfer students with more than 60 credits, who were unsuccessful in gaining admission to a Limited Enrollment Program, receive advising and assistance from a Letters and Sciences professional staff member during their first two semesters on campus. For this group of students, the University waives the requirement that all students must declare a major by 60 credits.

Transitional Advising Program
Currently enrolled students with more than 60 credits, who are moving between colleges due to change of interest, inability to meet benchmarks, or lack of sufficient GPA, receive advising and academic support. For this group of students, the University waives the requirement that all students must be in a declared major after 60 credits, for one semester.

Pre-Law Advising
Letters and Sciences offers specialized advising for students interested in law. For further information, see the section on Pre-Law Advising in this catalog, visit www.prelaw.umd.edu, or email prelaw@umd.edu.

Credit by Exam
Any University of Maryland student interested in Credit by Exam can pick up the form at the Letters and Sciences office.

Maryland Center for Undergraduate Research (MCUR)

1201 (first floor) Marie Mount Hall, 301-314-6786
www.ugresearch.umd.edu
ugresearch@umd.edu

Director: Francis DuVinage

The Maryland Center for Undergraduate Research (MCUR) is an initiative of the Office of the Dean of Undergraduate Studies. Created as a resource for students and faculty, the Center serves as a clearinghouse for information about both on-campus and off-campus research opportunities for undergraduates.

Major programs of the MCUR include Maryland Student Researchers, which permits faculty to list research opportunities open to undergraduates during the academic year, and Maryland Summer Scholars, which provides funding for students to conduct summer research (on campus or elsewhere in the US or abroad as needed) under the mentorship of Maryland faculty members. Students new to research as well as students with previous research experience participate in these programs. MCUR also sponsors Undergraduate Research Day, the University's largest and broadest undergraduate research event, every spring.

Naval Reserve Officer Training Corps Program (Naval ROTC)

0110 Reckord Armory, 301-314-6289
http://navalrotc.umd.edu/
navalrotc@umd.edu

Director: Captain Troy Mong

The Naval Reserve Officers Training Corps (NROTC) Program was established to educate and train qualified young men and women for service as commissioned officers in the US Navy (unrestricted line), or in the Marine Corps while completing their undergraduate degree. The NROTC Scholarship Program fills a vital need in preparing mature young men and women for leadership and management positions in an increasingly technical Navy and Marine Corps. It is highly recommended that students seeking a commission contact the Department of Naval Science/NROTC unit for full program details before registering for classes.

Program Requirements

The UMD NROTC Program was established to educate and train qualified young men and women for service as commissioned officers in the United States Navy and Marine Corps. The NROTC Scholarship Program plays an important role in preparing mature young men and women for leadership and management positions in an increasingly technical military environment. NROTC midshipmen are required to complete the naval science courses and attend weekly professional seminars. During the summer, NROTC midshipmen participate in active duty at sea or shore-based training cruises for approximately four weeks. Upon receiving their

Baccalaureate Degree and completing the NROTC program, qualified midshipmen are commissioned as ensigns in the U.S. Navy or second lieutenants in the Marine Corps. Commissioned naval officers go on to training in various warfare specialties and serve as surface or submarine officers, naval aviators, explosive ordinance disposal officers or SEALs. Marine Corps officers attend "The Basic School" in Quantico, Virginia, and serve in fields such as infantry, artillery, combat engineers, and aviation. Staff positions (intelligence, law, medicine) are not normally offered through NROTC.

The NROTC Program was established to develop midshipmen mentally, morally and physically and to imbue them with the highest ideals of duty, and loyalty, and with the core values of honor, courage and commitment in order to commission college graduates as naval officers who possess a basic professional background, are motivated toward careers in the naval service, and have a potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship and government.

Academic requirements

The Naval Science curriculum includes courses on topics such as Navy and Marine Corps organization, at-sea navigation, leadership, naval history, amphibious warfare, engineering, and weapons systems. Courses emphasize development of professional knowledge and leadership skills, which are placed in the context of military service immediately following graduation from University of Maryland.

Students in the NROTC program enroll in one Naval Science course per term. Some courses are required for both Navy and Marine option students, while others are specific to the branch of service. All NROTC students must also enroll in the Naval Science Laboratory (NAVY108) each term.

Navy option students must complete eight core curriculum courses offered by University of Maryland, including two term courses in calculus to be completed by the sophomore year, two term courses in calculus-based physics, with laboratory, to be completed by the junior year, two term courses in English or equivalent writing courses, one term course in history or national security policy, and one term course in world culture or regional studies.

Curriculum

Navy Option students typically will take:

Freshman Year: Navy100 (Fall), NAVY101 (Spring)

Sophomore Year: Navy200 (Fall), NAVY201 (Spring)

Junior Year: Navy300 (Fall), NAVY301 (Spring)

Senior Year: Navy400 (Fall), NAVY401 (Spring)

Marine Option typically will take:

Freshman Year: Navy100 (Fall), NAVY101 (Spring)

Sophomore Year: Navy200 (Fall)

Junior Year: Navy302 (Fall), NAVY402 (Spring)

Senior Year: NAVY401 (Spring)

Scholarships and Incentives

Recipients of National Scholarships are selected from applicants to a national competition (https://www.nrotc.navy.mil/). Additionally, through the NROTC 3 year and 2 year scholarship process, freshmen and sophomore members of NROTC in all degree programs are eligible to compete for scholarships also based on a competitive NROTC selection process. Scholarship recipients receive money for full tuition and fees, a book allowance (currently $700/year), and a monthly allowance from $250 to $400, depending on the student's NROTC year. If unqualified for a scholarship but recommended for "advanced standing", a student will have the ability to commission in the U.S. Navy and will receive a book stipend and monthly allowance. There are no scholarship opportunities for juniors or seniors.

Campus Involvement

The NROTC unit values well-rounded future officers and encourages battalion members to get involved with numerous activities on campus. With participation in an internship, a semester abroad, intramural and varsity sports teams, fraternities or sororities, music or performance groups and countless clubs and groups, many members find outside activities an enjoyable aspect of their college experience.

Orientation

1102 Cole Student Activities Building, 301-314-8217
www.orientation.umd.edu
askorientation@umd.edu

Director: Dr. Gerry Strumpf

The goal of New Student Orientation is to introduce new students to the University of Maryland community. The Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend the University of Maryland.

New Student Orientation
Held prior to the semester a student enrolls at the University of Maryland, New Student Orientation for first-time freshmen traditionally covers two days; New Student Orientation for new transfer students covers one day. During New Student Orientation, individuals meet with

representatives from their academic college for advising and course scheduling. Undergraduate Orientation Advisors (OA) introduce students to academic and student life at the University of Maryland, including student campus services and resources, and opportunities for involvement on campus.

Parent and Family Orientation
Parents and family members of new University of Maryland students are strongly encouraged to attend a one-day Parent and Family Orientation program specifically designed to introduce them to the academic, social, and cultural opportunities of the university, to better prepare them for the issues that are likely to affect their son(s) or daughter(s) throughout their matriculation at the University of Maryland, and provide them with numerous resources and information to help their student succeed inside and outside the classroom.

Terp Trips
Terp Trips focus on the continuing transition of parents and family members. Offered to parents and family members on the second day of summer first year freshmen New Student Orientation programs *only*, these one-day programs combine a trip to an area attraction with a small group of other parents/family members and a campus faculty or staff host.

Introduction to the University (UNIV) Seminars
The Orientation Office coordinates new student seminar courses, UNIV100 and UNIV101. These courses introduce students to the world of higher education and, more specifically, to the University of Maryland. Course topics include career/major exploration, successful studying/test-taking strategies, diversity, time management, and involvement within the University of Maryland. UNIV seminar courses are led by a faculty or staff member and often an undergraduate TA.

Pre-College Programs

4111 John S. Toll Physics Building, 301-405-6776
www.precollege.umd.edu
pre-college@umd.edu
Executive Director: Georgette Hardy

Upward Bound Programs: 301-405-6776
Upward Bound-Math and Science Program (UB-MS): 301-405-1224

The University of Maryland Pre-College Programs in Undergraduate Studies is comprised of three federally and state supported programs:

Two Upward Bound Programs (UB) and
Upward Bound-Math and Science Program (UB-MS)

These programs generate the skills and motivation necessary for success in post-secondary education. They immerse high school participants in rigorous academic instruction, tutoring, counseling, and innovative educational experiences throughout the school year and during the

six-week summer residential program. Pre-College Programs are part of the Federal TRIO Programs that provide educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds.

The UB Programs are open to low-income and/or first-generation college bound high school students in grades 9 through 12, who demonstrate an academic need and want to pursue a four-year postsecondary education. Eligible students must attend target high schools in Prince George's and Montgomery Counties. High school principals, teachers, and counselors recommend students to the program.

Eligibility for the Upward Bound Programs require that students attend Northwood High School in Montgomery County. Bladensburg, Central, High Point, Parkdale, or Northwestern High Schools in Prince George's County.

The UB-MS is open to students in grades 9 through 12, who demonstrate an academic need and want to pursue post-secondary education programs in fields related to mathematics and science. UB-MS recruits high school students who have successfully completed Algebra I, and attend Potomac and Fairmont Heights High Schools in Prince George's County, MD; Watkins Mill High School in Montgomery County, MD; and Bell High School in Washington, DC.

Pre-Transfer Advising

0110 Hornbake, 301.405.9449 or 9448
www.transferadvising.umd.edu
transferadvising@umd.edu
Assistant Dean: Lisa Kiely

The Pre-Transfer Advising Program promotes academic success and excellence by assessing the readiness of students who wish to transfer to UM. Pre-Transfer Advising assists students in estimating time to degree completion and advises on which courses to take prior to transfer. Advisors also serve as a resource for community college staff.

National Scholarship Office

2403 Marie Mount Hall, 301-314-1289
www.scholarships.umd.edu
scholarships@umd.edu

Director: Francis DuVinage, Ph.D.

The National Scholarships Office at the University of Maryland, College Park aims to provide undergraduates with the best possible information, guidance and support as they learn about and apply for national scholarships.

National scholarships are competitive, prestigious awards that provide opportunities and support for a wide range of enriching experiences, including study abroad, graduate study (and

sometimes undergraduate study also), federal employment, teaching, research, and public service. National scholarships are looking for students (with or without financial need) who are developing strong interests and goals - academic and extracurricular - and who want to take advantage of every constructive opportunity that will help them reach their objectives. Just as each national scholarship offers a different kind of opportunity, each is also looking for a different range of strengths and interests in its applicants. If you develop a strong academic record, are thoughtful about your choices and devote yourself to activities you care about, you may well find one or more scholarship opportunities of interest to you.

The National Scholarships Office strives to make learning about and applying for national scholarships an enlightening experience. In addition to providing information about national scholarships through our website, through group presentations and through individual advising, we also provide individualized guidance and support at every stage of the application process. We invite you to visit our website and to make an appointment with us to learn more about national scholarships that may help you attain your goals.

Student Success Office

0110C Hornbake,www.studentsuccess.umd.edu
rr-admit@umd.edu

Coordinator: Paulanne Walker; Assistant Dean: Lisa Kiely

The Student Success Office is a clearinghouse for services and resources to assist students in the completion of their undergraduate degrees. This includes:

- Coordinating reenrollment
- Centralizing tutoring resources
- Managing data from exiting students
- Providing leadership on other retention initiatives

For more information, please see www.studentsuccess.umd.edu.

Chapter 7. Departments, Majors, and Programs

ACCOUNTING (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: E. Cantor (Associate Chair), M. Loeb
Professors: L. Gordon, O. Kim, M. Loeb, S. Loeb
Associate Professors: S. Cheng, R. Hann, M. Kimbrough, N. Seybert
Assistant Professors: H. Lee, J. Staihar (Asst Prof), M. Subasi (Asst Prof), T. W Ranasinghe (Asst Prof), E. Zur
Lecturers: P. Basu (Clinical), S. Brown (Clinical), G. Bulmash (Clinical), E. Cantor (Lecturer, Assoc Clin Prof), M. Finch, E. Folsom (Lecturer), P. Ford (Lecturer), M. Gagnon (Lecturer), S. Handwerger, M. Keim, R. Martin (Lecturer), E. Martinez (Lecturer), J. McKinney (Clinical), J. Milton (Lecturer), L. Mostow (Lecturer), A. Ramirez (Lecturer), S. Rose (Lecturer), A. Siegfried (Lecturer), D. Sites (Lecturer), D. Weber (Lecturer), H. Weiner (Lecturer)
Visiting Faculty: S. Demirkan (Visit Asst Prof), L. Zhou

The Major

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, accounting consists of all financial systems for planning, controlling, and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation. The accounting curriculum provides an educational foundation for careers in public accounting and management, whether in private business organizations, government or nonprofit agencies, or consulting. Two tracks are provided: The Public Accounting Track leading to the CPA (Certified Public Accounting) and the Management Accounting/Consulting Track. ***Please note:*** Currently, only the Public Accounting track is available.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

	All Accounting Majors:	**Credits**
BMGT310	Intermediate Accounting I	3
BMGT311	Intermediate Accounting II	3
BMGT321	Managerial Accounting	3
BMGT326	Accounting Systems	3

Accounting Majors must complete an additional 12 credits from one of the following tracks.

Public Accounting Track:

BMGT323	Taxation of Individuals*	3
BMGT411	Ethics and Professionalism in Accounting*	3
BMGT422	Auditing Theory & Practice*	3
	One of the following:	3
BMGT410	Government Accounting	
BMGT417	Taxation of Corporations, Partnerships and Estates	
BMGT423	Fraud Examination	
BMGT424	Advanced Accounting	
BMGT427	Advanced Auditing Theory & Practice	
BMGT428	Special Topics in Accounting	

Management Accounting/Consulting Track:

BMGT426	Advanced Managerial Accounting	3
	Three of the following:	9
BMGT305	Survey of Business Information Systems and Technology	
BMGT323	Taxation of Individuals*	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT402	Database Systems	
BMGT403	Systems Analysis and Design	
BMGT410	Government Accounting	
BMGT411	Ethics and Professionalism in Accounting*	
BMGT417	Taxation of Corporations, Partnerships and Estates	
BMGT423	Fraud Examination	
BMGT424	Advanced Accounting	
BMGT428	Special Topics in Accounting	
BMGT430	Linear Statistical Models in Business	
BMGT434	Introduction to Optimization	
BMGT440	Advanced Financial Management	
BMGT446	International Finance	

	Upper Level Economics Requirement	3
	One of the following courses:	
ECON305	Intermediate Macroeconomic Theory and Policy	

ECON306 Intermediate Microeconomic Theory
ECON330 Money and Banking
ECON340 International Economics

Total Credits for Accounting and Economics	27

** Required for CPA in Maryland*

In addition to the major requirements listed above, please consult Chapter 6 or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

The basic educational requirements of the Maryland State Board of Public Accountancy to sit for the CPA examination are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by course work the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing outside Maryland should determine the educational requirements for that state and arrange their program accordingly.

120 credits are required to complete a degree in Accounting; however, students seeking to become a Certified Public Accountant (CPA) must meet the certification requirements for the state in which they wish to practice. Most states, including Maryland, require a minimum of 150 credit hours of college education to fulfill the education requirements to obtain a CPA license. However many of these states, including Maryland, will allow applicants to take the CPA exam prior to earning 150 credits if they have accumulated 120 credits, earned a degree, and meet specified education requirements. In addition, do not assume the course and credit requirements for the accounting major are sufficient for all states. For details on various states' CPA requirements visit www.nasba.org.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Aerospace Engineering (ENAE)

A. James Clark School of Engineering
3179 Glenn L. Martin Hall, 301-405-2376
www.aero.umd.edu
aero_undergrad@umd.edu
Chair: N. Wereley (Minta Martin Professor of Aerospace Engineering)
Director: J. Barlow (Director of Glenn L. Martin Wind Tunnel), R. Sanner (Assoc Prof & Director of Undergraduate Studies), R. Sedwick (Assoc Prof & Director of Honors Program)
Professors: J. Baeder, O. Bauchau, R. Celi, I. Chopra (Alfred Gessow Professor of Rotorcraft Engineering), A. Flatau, W. Fourney (Professor, Associate Dean of Engineering), J. Hubbard (Samuel P. Langley Distinguished Professor), S. Lee, M. Lewis, E. Oran (Glenn L. Martin Institute Professor), D. Pines (Dean, Clark School of Engineering))
Associate Professors: D. Akin, C. Cadou, A. Datta (Assoc Res Sci, Visit Assoc Prof), A. Jones, P. Martin, D. Paley (Willis H. Young Jr. Professor of Aerospace Engineering Education), R. Sanner, R. Sedwick, A. Winkelmann, K. Yu
Assistant Professors: C. Hartzell, S. Laurence, H. Xu
Lecturers: B. Barbee, A. Becnel (Lecturer), C. Carignan, Y. Choi (Assoc Res Sci), L. Healy, D. Israel, K. Lewy, J. Mitchell, E. Morelli, V. Nagaraj (Sr Res Sci), A. Nedungadi (Lecturer), D. Palumbo
Affiliate Professors: A. Trouve
Affiliate Associate Professors: M. Gollner, J. Humbert, A. Marshall
Associate Research Scientist: Y. Choi (Assoc Res Sci), S. Na (Assoc Res Sci)
Assistant Research Scientist: V. Hrishikeshavan (Asst Res Sci), B. Madapusi Govindarajan (Asst Res Sci), J. Park (Asst Res Sci)
Assistant Research Professor: I. Faruque (Asst Rsch Prof), R. Houim (Asst Res Sci)
Professors Emeriti: J. Anderson, E. Jones, J. Leishman (Prof Emeritus)
Visiting Faculty: M. Bowden, C. Kaplan-Solomond (Visiting Assoc Res Prof), F. Schmitz

The Major

Aerospace engineering concerns processes involved in design, manufacture and operation of aerospace vehicles within and beyond planetary atmospheres. Vehicles range from helicopters and other vertical takeoff aircraft at the low-speed end of the flight spectrum, to spacecraft traveling thousands of miles per hour during launch, orbit, trans-planetary flight or re-entry at the high-speed end. Between are general aviation and commercial transport aircraft flying at speeds well below and close to the speed of sound, and supersonic transports, fighters and missiles. Although each speed regime and each vehicle poses its special problems, all aerospace vehicles can be addressed by a common set of technical specialties or disciplines.

Sub-disciplines of Aerospace Engineering are: aerodynamics, flight dynamics, propulsion, structures, and "design". Aerodynamics addresses the flow of air and associated forces, moments, pressures, and temperature changes. Flight-dynamics addresses the motion of vehicles including trajectories, rotational dynamics, sensors, and control laws required for successful accomplishment of missions. Propulsion addresses the engines which have been devised to convert chemical (and occasionally other forms) energy into useful work to produce the thrust

needed to propel aerospace vehicles. Structures addresses material properties, stresses, strains, deflection, and vibration along with manufacturing processes required to produce very light weight and rugged elements needed in aerospace vehicles. Aerospace "design" addresses the process of synthesizing vehicles and systems to meet defined missions and more general needs. This process draws on information from other sub-disciplines while embodying its own unique elements. The Aerospace Engineering program is designed to provide a firm foundation in various sub-disciplines.

Courses offered by this department may be found under the acronym: ENAE

The Bachelor of Science in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 415 North Charles Street, Baltimore, MD 21201, telephone: (410) 347-7700.

Program Objectives

(1) Our graduates will be successful in their professional careers, including industry, government service, and academia, in the State of Maryland and beyond.

(2) Our graduates will contribute to the creation of useful new products, or the generation of original research, by analyzing and implementing solutions to relevant problems in the component disciplines of Aerospace Engineering.

(3) Our graduates will contribute effectively when part of an integrated team, clearly communicating with team members, supervisors, and clients.

(4) Our graduates will understand the societal context in which their profession is practiced, and will successfully adapt to future developments in both technology and the employment market.

Program Learning Outcomes

As a result of completing our undergraduate program, our students should have developed the following skills:

1) Ability to apply knowledge of mathematics
2) Ability to apply knowledge of basic science (chemistry, physics)
3) Ability to apply knowledge of engineering principles
4) Ability to use computers to solve engineering problems
5) Ability to identify, formulate, and solve engineering problems
6) Ability to design and conduct experiments
7) Ability to analyze and interpret data
8) Ability to design a component, system, or process to meet desired needs under realistic constraints
9) Ability to use the techniques, skills, and tools of modern engineering practice
10) Ability to write effectively
11) Ability to speak effectively

12) Ability to function effectively as part of a multidisciplinary team
13) Understanding of professional and ethical responsibility
14) Knowledge of contemporary issues in engineering
15) Understanding of the impact of engineering solutions in a global, economic, environmental, and societal context
16) Awareness of the need to continually upgrade my technical knowledge base and skills

Academic Programs and Departmental Facilities

The Aerospace Engineering Department has a number of facilities to support education and research across a range of special areas. The department has subsonic wind tunnels with test sections ranging from a few inches up to 7.75 feet by 11.00 feet as well as a supersonic tunnel with a 6 inch by 6 inch test section. There are a number of structural test machines with capabilities up to 220,000 pounds for static loads and 50,000 pounds for dynamic loads. The department also has experimental facilities to test helicopter rotors in hover, in forward flight, and in vacuum to isolate inertial loads from aerodynamic loads. There is an anechoic chamber for the investigation of noise generated by helicopters, and an autoclave and other facilities for manufacturing and inspecting composite structures. The neutral buoyancy facility, which investigates the assembly of space structures in a simulated zero gravity environment, is supported by robots and associated controllers. There are also many computers and workstations that provide local computing capability and extensive network access to campus mainframes, supercomputing centers, and all the resources of the Internet.

Admission to the Major

Admission requirements are the same as those of other Engineering Departments. For admission information please see A. James Clark School of Engineering under The Colleges and School section of this site.

Requirements for the Major

		Credits First Sem	Credits Second Sem
	Freshman Year		
ENES100	Introduction to Engineering Design *(**can be taken first or second semester)*	3**	
ENAE100	The Aerospace Engineering Profession	1	
CHEM135	General Chemistry for Engineers	3	
MATH140/141	Calculus I, II	4	4
PHYS161	General Physics I		3
ENES102	Mechanics I *(**can be taken first or second semester)*		3**
ENAE202	Aerospace Computing		3
	General Education Program Requirements	3	3

	Total Credits	**14**	**16**

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
ENES220	Mechanics II	3	
ENAE283	Introduction to Aerospace Systems	3	
MATH241	Calculus III	4	
ENAE200	The Aerospace Engineering Profession II		1
ENES232	Thermodynamics		3
MATH246	Differential Equations		3
MATH461	Linear Algebra for Scientists and Engineers **or**		3-4
MATH 240	Introduction to Linear Algebra		
PHYS260/261	General Physics II	4	
PHYS270/271	General Physics III		4
	General Education Program Requirements	3	3
	Total Credits	**17**	**17-18**

	Junior Year	**Credits First Sem**	**Credits Second Sem**
ENAE311	Aerodynamics I	3	
ENAE301	Dynamics of Aerospace Systems	3	
ENAE362	Aerospace Instrumentation and Experimentation	3	
ENAE324	Aerospace Structures		4
ENAE432	Control of Aerospace Systems		3
ENAE380	Flight Software Systems	3	
ENGL393	Technical Writing		3
	General Education Program Requirements	3	3
	Aeronautical Track:		
ENAE414	Aerodynamics II		3
	Space System Track:		
ENAE404	Space Flight Dynamics		3
	Total Credits	15	16

	Senior Year	**Credits First Sem**	**Credits Second Sem**
ENAE464	Aerospace Engineering Lab		3

ENAE423	Vibration & Aeroelasticity	3	
ENAE398*	Honors Research Project, **or**		3
ENAE 400s*	one 400 level ENAE course		
ELECTIVE+	Technical Elective; see note below		3
	General Education Program Requirements	3	3
	Aeronautical Track:		
ENAE403	Aircraft Flight Dynamics	3	
ENAE455	Aircraft Propulsion & Power	3	
ENAE481	Principles of Aircraft Design	3	
ENAE482	Aeronautical Systems Designs		3
	Space System Track:		
ENAE441	Space Navigation & Guidance	3	
ENAE457	Space Propulsion & Power	3	
ENAE483	Principles of Space Systems Design	3	
ENAE484	Space Systems Design		3
	Total Credits	**15**	**15**

** Only one of ENAE 398, 488 or 499 may be used for these electives.*

+One 300/400 level course in Engineering, Mathematics, or Physical Sciences that has been approved for this purpose by the Undergraduate Program Director.

Minimum Degree Requirements: The fulfillment of all department, school, and university requirements. A minimum of 124 credits are required for an Aerospace Engineering degree.

Students must select a track. All courses in either the Aeronautical or Astronautical track must be completed. Students in either track who wish to gain a broader education across the aeronautical or space application areas can take courses required in the other track as electives.

Academic Benchmarks: Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

Aerospace Electives

The department offers a range of electives. The following courses have recently been offered as electives for the undergraduate degree:

ENAE398H Honors Research

ENAE415	Helicopter Theory	3
ENAE416	Viscous Flow & Aerodynamic Heating	3
ENAE424	Design &Manufacture of Composite Prototypes	
ENAE425	Mechanics of Composite Structures	3
ENAE426	Computer-Aided Structural Analysis and Design	3
ENAE471	Aircraft Flight Testing	3
ENAE488B	Intro to Computational Structural Dynamics	3
ENAE488M	High Speed Aerodynamics	3
ENAE488P	Product Design	3
ENAE488R	Hybrid Rocket Design	3
ENAE488W	Design of Remotely Piloted Vehicles	3
ENAE499	Elective Research *(Repeatable to 6 credits)*	3

Other Requirements for the Major

See Chapter 6 for minimum grade requirements in key prerequisite courses for engineering students. Students should follow the sequence of courses as outlined in the aerospace engineering degree requirements and four-year plan.

Advising

Advising is mandatory each semester. First year students are primarily advised by the Assistant Director of Undergraduate Studies and the Undergraduate Programs Coordinator. After the first year, students are assigned to a faculty advisor whose permission is required for course registration each semester. The list of advisor assignments is available on the department's website.

Undergraduate Research Experiences

Students can be employed and perform research in any of the department's research labs, centers, or facilities. Participation in an on or off campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the aerospace engineering undergraduate studies staff for information on performing research in a department lab and contact the Engineering Co-op and Career Services office for assistance in obtaining off campus positions or experiences.

Honors Program

The Aerospace Engineering Honors Program at the University of Maryland provides a rigorous and comprehensive education for a career in technical leadership and scientific or engineering

research. Honors coursework encompasses the required curriculum for all University of Maryland Aerospace Engineering students at an advanced level.

At the end of their first academic year, each aerospace student is evaluated and students are invited to join the program based on their University of Maryland cumulative grade point average and progress toward their degree in Aerospace Engineering. Honors sections of ENAE283, ENAE311, and ENAE423 (designated by an 'H' following the course number) are offered as part of this program, in addition to an honors research project, ENAE398H, which culminates in a scholarly paper and presentation at a professional conference. Students who complete the honors curriculum graduate with Aerospace Honors at the time of commencement.

Student Societies and Professional Organizations

The Department is home to student chapters of the American Institute of Aeronautics and Astronautics, American Helicopter Society - International, and the Sigma Gamma Tau aerospace engineering honors society. Aerospace Engineering students are also frequent participants in student activities of the Society for Advancement of Materials and Process Engineering.

Scholarships and Financial Assistance

The Department offers academic scholarships, and recipients are chosen based on merit. All admitted and current students in the department are automatically considered for these awards. No separate application is required. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Department offers the following awards: Gessow Academic Achievement Awards for the seniors with the highest overall academic average at graduation; R.M. Rivello Scholarship Award and the Joseph Guthrie Memorial Award for highest overall academic average through the junior year; Chair Award for leadership and service to the department, Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the student chapter and the department; American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter and the department; John Anderson Scholarship in Aerospace Engineering for the best paper and poster presentation based on research performed at the University of Maryland.

African American Studies (AASP)

College of Behavioral and Social Sciences
1119 Taliaferro Hall, 301-405-1158
www.bsos.umd.edu/aasd
Chair: O. Barbarin (Prof & Chair, Prof)
Director: V. Skeeter (Dir Admin Srv)

Associate Professors: S. Harley, S. Madhavan, J. Richardson
Assistant Professors: C. Hardaway
Lecturers: L. Batties, J. Clark, T. Clarke (Lecturer), J. England, R. Hall (Lecturer), J. Nichols, J. Semper
Adjunct Professors: A. Williams (Res Prof)

The Major

The African American Studies Department offers a Bachelor of Arts degree with two highly-regarded options: a Cultural and Social Analysis Concentration with emphasis on culture and history; or the Public Policy Concentration with an emphasis on problem-solving, analytical decision-making, and practical applications of policy analysis and management skills. In addition, students who elect majors in other departments can earn a Certificate in African American Studies. In September 2004, we introduced a minor in Black Women's Studies which is a collaborative program with the University's Department of Women's Studies.

Courses offered in this department may be found under the acronym AASP.

Program Objectives

The African American Studies Department (AASD) fosters an intellectual environment in which majors learn to critically examine, analyze, interpret and discuss the experiences, culture, traditions, and dynamics of people of the African Diaspora. A primary goal of the program is to develop strong critical thinking, analytical skills, research and writing skills, through our curriculum, such that AASD majors learn the interdisciplinary methods used in examining the socio-economic, historical, and political experiences and contributions of people of African descent. Our curriculum is organized and structured to introduce AASD majors to African American Studies and to ensure that they receive appropriate grounding in the major themes of the field and can place these themes in the historical context of the African Diaspora such that they are better prepared to address the social scientific issues of race, racism, and inequality. The program provides preparation in fundamental research methodology so that AASD majors are able to explore research questions with sufficient rigor.

Relevance of goals to the mission statements and/or strategic plans of the university, college, or program as applicable:

The University of Maryland's stated goals for undergraduates include the ability to learn and develop critical reasoning and research skills; written and oral communications skills; science and quantitative reasoning, and technological fluency. AASD majors are well prepared upon graduation in these areas through the department's curriculum and extensive one-on-one mentoring by the AASD faculty.

Program Learning Outcomes

A primary goal of the African American Studies Department is to develop strong critical thinking, research and writing skills, through our curriculum, such that AASD majors learn the

interdisciplinary methods used in examining the socio-economic, historical, and political experiences and contributions of people of African descent. Students should acquire the following knowledge and skills:

Goal 1: Competency in critical analysis:

AASD students will be able to demonstrate critical reading and analytical skills, including understanding an argument's major assertions and assumptions and how to evaluate its supporting evidence.

Students will be able to articulate how historical change shapes ideas and social and political structures.

Students will be able to analyze forms and traditions of thought or expression in relation to cultural, historical, political, and social context, as, for example, dance, literature, music, and philosophical and religious traditions.

Goal 2: Competency in written communications:

AASD majors will be able to demonstrate research skills, integrate their own ideas with those of others and apply the conventions of attribution and citation correctly.

Students will be able to demonstrate the ability to formulate a thesis related to a specific topic and to support the thesis with evidence and argumentation.

Goal 3: Technological competency and critical analysis:

AASD majors will be able to demonstrate an understanding of the differences among appropriate and inappropriate methods for drawing conclusions through the use of formal analytical, or computational techniques to address real-world problems.

Goal 4: Critical/Analytical Reasoning:

AASD majors will be able to distinguish between premises and conclusions, or between data and inferences from data.

Goal 5: Competency in oral communications:

AASD majors will be able to demonstrate an understanding of the connection between writing and thinking and will be able to utilize writing and reading for inquiry, learning, thinking and communicating in an academic setting. They will use effective presentation techniques drawn from interdisciplinary research methods.

Admission to the Major

Students wishing to major in African American Studies must make an advising appointment for an orientation to the major. Students must complete an application and attend a BSOS academic plan workshop.

Please call the AASD office at 301-405-1158 to make an advising appointment.

Requirements for the Major

Students must earn a grade of "C-" or better in each course that is to be counted toward completion of degree requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. All related or supporting courses in other departments must be approved by an AASP faculty advisor.

Foundation courses required for all majors:		**Credits**
AASP100	Introduction to African American Studies	3
AASP101	Public Policy and the Black Community *(Formerly AASP300)*	3
AASP200	African Civilization	3
AASP202	Black Culture in the United States	3
AASP297	Research Methods in African American Studies *(Formerly AASP299R)*	3
	General Education	40-46
Cultural and Social Analysis Concentration Requirements:		
ELECT 300/400	Upper-Division Electives in African American Studies	18
	Seminars	
	One from:	3-6
AASP397	Senior Thesis	
AASP386/396	Experiential Learning/Independent Study Non-Thesis Option	
AASP395	Fundamentals of Quantitative Research	3
	One from:	3
AASP400	Directed Readings in African American Studies	
AASP402	Classic Readings in African American Studies	
Public Policy Concentration Requirements:		
	Analytic Component	
AASP301	Applied Policy Analysis and the Black Community *(Formerly AASP428J)*	3
AASP303	Computer Applications in African American Studies *(Formerly AASP428P)*	3
AASP305	Theoretical, Methodological, and Policy Research Issues in African American Studies *(Formerly AASP401)*	3
ECON200	Principles of Microeconomics	4
ECON201	Principles of Macroeconomics	4

	One additional analytical skills course outside of AASP, with AASP approval	3
	One from:	3
STAT100	Elementary Statistics and Probability	
SOCY201	Introductory Statistics for Sociology	
	Equivalent Statistics Course *(Sophomore Year)*	
AASP*	Policy Electives in African American Studies*	6
	Final Option	3-6
	One from:	
AASP397	Senior Thesis	
AASP386/396	Experiential Learning / Independent Study Non-Thesis	
	Total Credits	**90-93**

**Upper-division AASP electives in the policy area (AASP numbers 499A-Z) or, with approval, elective courses outside of AASP*

Requirements for the Minor

Black Women's Studies

Joint Minor in Black Women's Studies
College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.umd.edu/wmst

College of Behavioral and Social Sciences
2169 Lefrak Hall
www.bsos.umd.edu/aasp

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. No course with a grade less than "C-" may be used to satisfy the minor. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more than two courses may count toward a major in African American Studies or Women's Studies.

Foundation courses (6 credits)
WMST263/AASP203 Introduction to Black Women's Studies or
WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
AASP313/WMST314 Black Women in U.S. History

Distributive Requirements (9 credits)
Area I - Comparative or Non-US Course - indicated by a * below (3 credits)
Area II - Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies
THET240 African Americans in Film and Theater
*ENGL362 Caribbean Literature in English
*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

Area III - Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
HIST319 Women and the Civil Rights Movement
*WMST360 Caribbean Women
*WMST410 Women of the African Diaspora
WMST488 Senior Seminar: Black Women in the Public Eye
AASP493 Feminist and Nationalist Thought in the Black Community
WMST498 Black Feminist Thought WMST498 Womanisms and Feminisms: Theories and Methods
AASP483 Gender, Sexuality and the Black Family

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Certificate

The Certificate in African American Studies offers undergraduate students an excellent opportunity to develop a specialization in African American issues while pursuing a major in another field. Certificate students learn about the social, economic, political and cultural history of the African American people through a concentration of courses they plan with the AASD Academic Advisor. Courses taken toward the certificate also may be used to satisfy General Education requirements and electives.

Earning a Certificate in African American Studies gives students a competitive advantage in the job market by adding greater focus to their undergraduate experience.

Please see catalog section on "Certificate Programs" for more information and requirements for a Certificate in African American Studies.

Advising

The African American Studies Department has mandatory advising for all AASD majors.

Undergraduates in good academic standing may enroll in the African American Studies Department or obtain more information about available options and services by contacting the Undergraduate Academic Advisor, African American Studies Department, 1119 Taliaferro Hall, University of Maryland, College Park, MD 20742, 301-405-1158.

Undergraduate Research Experiences

African American Studies majors and certificate students are welcome and encouraged to apply for undergraduate research assistantships as part of AASP386, Experiential Learning. The student must be in good standing and have at least 56 cumulative credit hours to apply.

Additionally, AASD majors with an overall GPA of 3.0 or above may enroll, with department permission, in the AASP397, Senior Thesis, working with one or more core AASD faculty members. The student must have successfully completed AASP297, Research Methods in African American Studies.

For more information and details, please call the AASD Academic Advisor at 301-405-1158.

Fieldwork Opportunities

Experiential Learning, AASP386, in African American Studies is an academic seminar for majors and certificate students who are working at internship or service sites and organizations whose mission and goals related to the African American experience. Through course work and class discussions, students are challenged to integrate their experiential experiences with the interdisciplinary study of past and present African American communities. To successfully earn credit for experiential learning students must fulfill the requirements at the internship or service site, participate in a weekly seminar, and complete the assigned projects aimed at bringing together academic research, reflective work, and professional development.

The internship or service portion of the course requires students to work closely with their site supervisors. Students are required to fulfill the job responsibilities and work the number of hours per week that is outlined in their learning proposals. Site supervisors define specific job responsibilities and assignments, monitor their training, and evaluate their performance at the end of the semester by completing an evaluation form and submitting a letter of recommendation to be included in their portfolios.

Students are also required to participate in a weekly seminar and complete assignments that examine the relationship between classroom, work, and service experiences. The seminar will give students the opportunity to discuss their internships and how their experiences are enhanced by their understanding of African American studies. During the seminar, students will share information about assignments and give each other feedback. Students will evaluate their internship sites and the roles the sites play in black communities and in promoting social change.

Internships

AASP386 - Experiential Learning in African American Studies was developed to enable majors and certificate students to formally link their academic studies to experiences as undergraduate teaching assistants, undergraduate research assistants, and through external internships, while doing so in a structured learning context.

Undergraduate teaching assistants and undergraduate research assistants work directly with an AASD faculty member who provides supervision and mentoring to the student in all aspects of their undergraduate assistantship.

Student participating in external internships work closely with their site supervisors. Students are required to fulfill the job responsibilities and work the number of hours per week that is outlined in their learning proposals. Site supervisors define specific job responsibilities and assignments, monitor their training, and evaluate their performance at the end of the semester by completing an evaluation form and submitting a letter of recommendation to be included in their portfolios.

All students must participate in a weekly seminar, and complete assigned projects aimed at bringing together academic research, reflective work, and professional development.

Honors Program

AASD offers honors sections for many of our General Education and upper-level elective courses.

AASP397, Senior Thesis, is a capstone course that offers AASD majors who have a cumulative GPA of 3.0 or higher and who complete AASP297, Research Methods in African America Studies, with a "B+" or better, the opportunity to work with a tenured or tenured-track AASD faculty member in an independent study to complete a senior thesis project.

Senior thesis students have the opportunity to research, write, and orally defend their thesis project before a panel of AASD faculty.

Please make an appointment to see the AASD Academic Advisor about the honors sequence by calling 301-405-1158.

Student Societies and Professional Organizations

AASD majors have the opportunity of being well prepared for leadership positions in campus organizations. AASD majors have historically held notable positions at the University of Maryland in such organizations as the NAACP, Alpha Nu Omega Sorority, Incorporated and The Black Student Union.

The Society of African American Studies is the student-run organization associated with and supported by the department. The Society provides community service in local schools, hosts

on-campus programs and events, and annually has supported a local family through its "Adopt-a-Family" program.

The Society annually sponsors a "Saturday Freedom School" program which brings middle school children from a local Prince George's County Public School to campus for seven consecutive Saturdays. The program provides mentoring and academic support that seeks to foster the development of positive Black identities in the student participants, while strengthening their academic performance.

Students are recruited from across the UMD campus to serve as mentors to Saturday Freedom School participants.

Please call 301-405-1158 to inquire about the Society of African American Studies.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit www.financialaid.umd.edu.

Awards and Recognition

Graduating seniors with an overall GPA of a 3.2 who have earned a 3.5 GPA within the major are recognized with departmental honors.

Graduating seniors with an overall GPA of a 3.5 who have earned a 3.7 GPA within the major are recognized with departmental high honors.

Agricultural and Resource Economics (AREC)

College of Agriculture and Natural Resources
2200 Symons Hall, 301-405-1293
www.arec.umd.edu
arecumd@gmail.com
Chair: J. Hanson
Professors: A. Alberini, R. Chambers, J. Hanson, R. Just, E. Lichtenberg, L. Lynch, M. Nerlove, L. Olson, S. Salant (Res Prof), R. Williams
Associate Professors: H. Leathers, K. Leonard
Assistant Professors: S. Gunnsteinsson, J. Holzer Bilbao, S. Houde, P. Jakiela, D. Newburn, M. Zaki
Instructors: A. Ellixson (Extension Legal Specialist), P. Goeringer (Extension Legal Specialist), D. Johnson (Farm Management Specialist)
Affiliate Professors: P. Cramton, M. Cropper
Adjunct Professors: J. Chavas, R. Fare, J. Hoddinott, A. Lange, J. List, J. Quiggin
Adjunct Associate Professors: K. McNew

Professors Emeriti: N. Bockstael, E. Brown, J. Cain, I. Hardie, D. Hueth, D. Lipton, J. Moore, I. Strand, D. Tuthill

The Major

Agricultural and Resource Economics majors complete a set of prerequisite courses, a core of classes offered by the Agricultural and Resource Economics Department, and one or more fields comprised of selected courses from outside the department. The core includes courses in economic reasoning, agribusiness management, environmental and resource policy, agricultural policy, economic development, and analytical methods. The program permits students flexibility in choosing fields to fit their career interests. Majors must complete one and are strongly encouraged to complete two fields. The curriculum balances breadth and depth, and lets students develop academic skills in two or more areas. The program provides a good foundation for careers in economics, resource or environmental policy, agribusiness, and international agriculture. Students are also able to minor in Agricultural and Resource Economics.

Program Learning Outcomes

Upon completion of the degree program, students should have acquired the following knowledge and skills:

- An understanding of economic terms and concepts.
- An ability to draw inferences from data.
- A knowledge of relevant laws, institutions, and policies.

Requirements for the Major

		Credits
	Prerequisite Courses	
ECON200	Principles of Microeconomics	4
ECON201	Principles of Macroeconomics	4
AREC326	Intermediate Microeconomic Theory 3	3
ECON321	Economic Statistics, **OR**	3
BMGT230	Business Statistics	
MATH120	Elementary Calculus I, **OR**	3
MATH140	Calculus I	
STAT100	Elementary Statistics and Probability, **OR**	3
MATH107	Math Modeling and Probability	
	Major Core Courses	
	Seven of these courses must be successfully completed.	
AREC404	Applied Price Analysis	3
AREC405	Economics of Production	3
AREC422	Econometric Applications in Agriculture	3
AREC425	Economics of the Food Sector	3

AREC427	Economics of Commodity Marketing Systems	3
AREC430	Introduction to Agriculture and Resource Law	3
AREC433	Food and Agricultural Policy	3
AREC435	Commodity Futures and Options	3
AREC445	Agricultural Development in the Third World	3
AREC446	Sustainable Economic Development	3
AREC453	Economics of Natural Resource Use	3
AREC455	Economics of Land Use	3
AREC456	Energy and Environmental Economics	3
AREC484	Introduction to Econometrics in Agriculture	3
AREC306	Farm Management	3
AREC382	Computer-Based Analysis in Agricultural and Resource Economics	3
AREC400s	any other 3 credit 400-level AREC course may be substituted with permission of advisor	
	Fields	
	All majors must complete one of the following fields. Two are strongly encouraged.	
	Business Management	
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3
BMGT350	Marketing Principles	3
BMGT364	Management and Organization	3
BMGT380	Business Law I	3
BMGT300s	*Other 300-level BMGT courses may be substituted, with permission of advisor.* ***(The AREC department cannot authorize students to take BMGT courses that are restricted to business majors.)***	
	Total Credits	18
	Agricultural Science	
	S*ix (or more) courses in agricultural science, including:*	
PLSC204	Fundamentals of Agricultural Mechanics	3
PLSC100 PLSC101	Introduction to Horticulture, **OR** Introduction to Crop Science	4
ENST105	Soil and Environmental Quality	3
ANSC101	Principles of Animal Science	3
AGRI SCI	*Other courses in agricultural science, chosen in consultation with an advisor. Substitutions to the above listed courses*	4

	may be made with the permission of advisor.	
	Total Credits	18
	Food Production	
	Six courses from the following list:	
PHYS117 PHYS121	Introduction to Physics, **OR** Fundamentals of Physics	4
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI223	General Microbiology	4
NFSC100	Elements of Nutrition	3
NFSC112	Food Science and Technology	3
NFSC430	Food Microbiology	3
NFSC431	Food Quality Control	4
	Other courses related to food science can be substituted with permission of advisor.	
	Total Credits	18
	Environmental and Resource Policy	
	Six courses from the following list:	
ECON481	Environmental Economics	3
ANTH450	Theory and Practice of Environmental Anthropology	3
HIST405	Environmental History	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GVPT273	Introduction to Environmental Politics	3
GVPT306	Global Ecopolitics	3
	Other courses related to environmental policies or sciences can be substituted with permission of advisor.	
	Total Credits	18
	International Agriculture	
	Six courses from the following list:	
ECON305	Intermediate Macroeconomics	3
ECON315	Economic Development of Underdeveloped Areas	3
ECON340	International Economics	3
GEOG422	Population Geography	3
GVPT200	International Political Relations	3
GVPT350	International Relations in the Third World	3
ENST440	Crops, Soils and Civilization	3
PLSC303	International Crop Production	3
	Other courses related to international economics, business, politics, or	

	agriculture can be substituted with permission of advisor.	
	Total Credits	18
	Political Process	
GVPT	Any six courses in government and politics, chosen with permission of the advisor.	18
	Total Credits	18
	Advanced Degree Preparation	
	Six (or more) courses from the following list:	
ECON407	Advanced Macroeconomics	3
ECON414	Game Theory	3
ECON415	Strategic Behavior and Incentives	3
ECON422	Econometrics I	3
ECON423	Econometrics II	3
ECON425	Mathematical Economics	3
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
	Other courses in mathematics, statistics, or econometrics may be substituted with permission of advisor.	
	Total Credits	18
	Student Designed Field	
	This field requires a written proposal listing at least six courses totaling at least 18 credits. The proposal must be submitted to the Undergraduate Committee of the AREC department. Committee approval must be obtained 30 or more credit hours before graduation. A student designed field may be used to study a foreign language as part of the AREC curriculum.	18
	Total Credits	18

Other Requirements for the Major

All courses must be passed with a grade of "C-" or better to count towards prerequisite courses, major core courses, or field requirements. "C- or better" means any grade for which the University awards 1.7 or more quality points in calculating GPA. Beginning with students matriculating Fall 2012, to be awarded a baccalaureate degree, students must have a minimum "C" (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.

Requirements for the Minor

Four minors exist in AREC, Agribusiness Economics, Resource and Agricultural Policy in Economic Development, Environmental Economics and Policy, and Global Poverty. Requirements are listed below:

Agribusiness Economics

Choose five courses from the following list. Nine credits must be at the 300-400 level.

AREC240 Introduction to Economics and the Environment
AREC250 Elements of Agricultural and Resource Economics
AREC306 Farm Management and Sustainable Food Production
AREC404 Applied Price Analysis
AREC405 Economics of Production
AREC425 Economics of Food Sector
AREC427 Economics of Commodity Marketing Systems
AREC433 Food and Agricultural Policy
AREC435 Commodity Futures and Options
AREC422 Econometric Applications in Agricultural and Natural Resource Economics

Another AREC course can be substituted for one of the courses listed with permission of the AREC Undergraduate Coordinator.

15 Total Credits

Resource and Agricultural Policy in Economic Development

Choose five courses from the following list. Nine credits must be at the 300-400 level.

AREC240 Introduction to Economics and the Environment
AREC250 Elements of Agricultural and Resource Economics
AREC345 Global Poverty and Economic Development
AREC365 World Hunger, Population and Food Supplies
AREC433 Food and Agricultural Policy
AREC445 Agricultural Development, Population Growth, and Environment
AREC453 Natural Resources and Public Policy
AREC422 Econometric Applications in Agricultural and Natural Resource Economics
AREC446 Sustainable Economic Development

Another AREC course can be substituted for one of the courses listed with permission of the AREC Undergraduate Coordinator.

15 Total Credits

Environmental Economics and Policy

Choose five courses from the following list. Nine credits must be at the 300-400 level.

AREC200 The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy
AREC240 Introduction to Economics and the Environment
AREC250 Elements of Agricultural and Resource Economics

AREC382 Computer-based Analysis in Agricultural and Resource Economics (Prerequisites: AREC 240 and MATH 111, STAT 100, or equivalent)
AREC445 Agricultural Development, Population Growth, and Environment
AREC453 Natural Resources and Public Policy
AREC454 The Economics of Climate Change
AREC455 Economics of Land Use
AREC422 Econometric Applications in Agricultural and Natural Resource Economics
Another AREC course can be substituted for one of the courses listed with permission of the AREC Undergraduate Coordinator.

15 Total Credits

Global Poverty

Students must complete at least 15 credits in the Minor including at least one of the following Signature courses in the Global Poverty Minor:

AREC345 Global Poverty and Economic Development (3 credits)
AREC365 World Hunger, Population, and Food Supplies (3 credits)

and at least one signature course from another track in the Global Studies Minor Program:

BSST330 Terrorist Motivations and Behaviors (3 credits)
ENES472 International Business Cultures in Engineering and Technology (3 credits)
GEOG130 Developing Countries (3 credits)
GEOG330 As the World Turns: Society and Sustainability in a Time of Great Change (3 credits)
GVPT306 Global Ecopolitics (3 credits)

The remaining credits must be completed from the following:

AREC445 Agricultural Development, Population Growth and the Environment (3 credits)

ANTH265 Anthropology of Global Health (3 credits)

GVPT282 Politics and the Developing World (3 credits)

GVPT350 International Relations of the Third World (3 credits)

GEOG423 Latin America (3 credits)

ECON314 Economic History, Development and Policy (3 credits)

ECON315 Economic Development of Underdeveloped Areas (3 credits)

ECON317 Global Economic Policies (3 credits)

ECON375 Economics of Poverty and Discrimination (3 credits)

ECON416 Theory of Economic Development (3 credits)

ECON418 Economic Development of Selected Areas (3 credits)

ENST100 International Crop Production-Issues and Challenges in the 21st Century (3 credits)

FMSC381 Poverty, Affluence, and Families (3 credits)

GEOG130 Developing Countries (3 credits)

HIST496 Africa Since Independence (3 credits)

HONR228N Evaluating Global Development Assistance (3 credits)

HONR228R Parenting and Poverty: The Effects of Growing Up Poor on Children's Development (3 credits)

NFSC425 International Nutrition (3 credits)

3 credits of study abroad or 3 credits of an internship or experiential learning related to poverty and approved by advisor.

A second Global Poverty signature course and additional signature courses from another Global Studies Minor may serve as electives provided they are not being used to satisfy the requirements of a different minor. Students may also propose other courses to meet the elective requirement. No course may be used to satisfy the requirements of more than one minor.

At least 9 credits must be at the 300-400 level.

All courses presented for the minor must be passed with a grade of "C-" or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum “C” (2.00) cumulative grade point average across all courses used to satisfy minor requirements.

Advising

Because the program is flexible, advising is mandatory every semester. Please visit this link for more information:
http://www.arec.umd.edu/undergraduate/advising

Undergraduate Research Experiences

Because it is part of a land grant university, the Department also has responsibility for research and technology transfer. During undergraduate study, students are encouraged to conduct independent research in faculty laboratories on campus or at the nearby U.S. Department of Agriculture Beltsville Agricultural Research Center and other area locations.

AREC faculty members provide a unique and rewarding research experience for undergraduates through the UMD First-Year Innovation & Research Experience (FIRE) program. The research agenda is continually updated and is designed to engage multiple focus areas in the department's advanced computational collaborative learning center. Current examples include how species characteristics, ecosystems, markets, technology and trade influence the conservation or overexploitation of natural resources, the impact of renewable energy systems and vehicle ownership on environmental quality and interventions that encourage households and small businesses to invest in cost-effective, energy-saving technologies. Students develop quantitative research skills including: framing research questions for quantitative policy analysis, preparing large data sets for analysis, data analytics and visualization techniques, and preparing research results for presentation, publication and outreach. This opportunity is available to first-year students of all majors. For more information please visit: http://fire.umd.edu/.

Internships

Internship Program

This internship experience is open to current AREC undergraduate students and students in the Global Poverty minor.

Internship Program Description

Students will identify an internship and start the process of getting approval from the Assistant Director. If students need help with identifying an internship, the Assistant Director can provide assistance. Once approval is given and all paperwork is signed, the student will register for the internship course, AREC386. A students must complete the internship in the same semester he/she register for the course.

Please visit this link for additional information:
http://www.arec.umd.edu/undergraduate/undergraduate-programs/internship-program

Scholarships and Financial Assistance

AREC offers scholarships to AREC undergrads. These awards are based on merit and are in addition to any funding received from the campus or from the college. Currently, scholarship awards are available to the full-time AREC majors with the highest GPAs. They are determined on a semester basis and depend on the availability of funds. Scholarship awardees are required to conduct themselves in accordance with the rules and regulations of the University.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Agricultural Science and Technology (AGST)

College of Agriculture and Natural Resources
2139 Plant Sciences Building, 301-405-4359
www.psla.umd.edu
dcortez@umd.edu
Chair: A. Murphy (Prof & Chair)
Director: B. Phillips (Asst Clin Prof)
Professors: S. Cohan (Clin Prof, Lecturer), J. Culver (Prof, Affiliate Prof), J. Sullivan (Prof, Lecturer, Affiliate Prof), C. Walsh (Prof)
Associate Professors: S. Xiao (Assoc Prof)

The Major

The Major

Agricultural Science and Technology is an interdisciplinary major about sustainable crop production. Students can choose either agronomy or environmental horticulture. This major is a science based curriculum that allows students to obtain technological skills in a broad area of agricultural studies. There are two specializations to choose from: Agronomy or Environmental Horticulture.

Agronomy

Agronomy students will be educated in a broad range of agricultural disciplines providing them with a comprehensive education in crop, soil and animal sciences. Students will take courses in Animal Science, Crop Science, Soil Science, Agricultural Economics and Pest Management. This specialization has electives that allows students to design their curriculum and develop knowledge in areas that meet their future goals. Students in this specialization may take coursework in a program designed to prepare them to teach high school agriculture. Graduates will be prepared to work in the agricultural industry in agricultural extension, management, marketing, regulatory, support services, teaching, etc.

Environmental Horticulture

The Environmental Horticulture specialization focuses on the science, technology and management of fruit, vegetable, flower and woody ornamental plant production. The applied aspects of the curriculum include training in plant propagation, greenhouse crop production systems, containerized nursery production, and the application of high tunnels for extending the fruit and vegetable crop production season. Courses are taken in plant science, soil science, plant protection and food safety practices. Graduates of this program pursue careers in urban

agriculture, horticultural enterprises and public education programs. Students can prepare for plant science graduate programs by taking additional courses.

The Department of Plant Science and Landscape Architecture offers two other undergraduate degrees: the Bachelor of Science (B.S.) in Plant Sciences and the Bachelor of Landscape Architecture (BLA).

Courses offered by this department are under: PLSC and LARC.

Program Learning Outcomes

- Students will develop technical and knowledge-based skills in the required areas of study.
- Students will use technical and basic learned knowledge to collaborate, solve problems, and then articulate conclusions.
- Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
- Students will connect and build relationships with external groups in the appropriate fields of study.

Requirements for the Major

Both specializations:

		Credits
ANSC101	Principles of Animal Science	3
ANSC103	Principles of Animal Science Laboratory	1
AREC250	Elements of Agricultural and Resource Economics	3
AREC**	Restricted Elective	3
BSCI337 **or** BSCI497	Biology of Insects Insects of Ornamentals and Turf	4
CHEM131/132	Chemistry I – Fundamentals of General Chemistry and Laboratory	4
ENST200	Fundamentals of Soil Science	4
MATH113	College Algebra with Applications	3
PLSC201	Plant Structure and Function	4
PLSC204	Fundamentals of Agricultural Mechanics	3
PLSC275 **or** CHEM231/232	Agricultural Chemistry Organic Chemistry and Laboratory	3-4
PLSC389	Internship	3
PLSC420	Plant Pathology	4
PLSC453	Weed Science	3
PLSC460	Application of Knowledge in Plant Sciences	3
Total		**48-49**

***Students may take any course having the required hours in the area indicated.*

Agronomy Specialization:

		Credits
Accounting, Education, Computer Science or Policy	Restricted Elective	3
ANSC	Elective	3
ANSC220	Livestock Management	3
ANSC/PLSC/LARC	Elective	3
BSCI160&161	Principles of Ecology and Evolution and Laboratory	4
ENST	Restricted Elective	3
PLSC101	Introduction to Crop Science	4
PLSC	Restricted Elective	3
Agronomy Specialization Requirements		**26**
Core Major Requirements		**48-49**
Additional General Education Requirements		**24-30**
Electives		**15-22**
Total		**120**

Environmental Horticulture Specialization:

		Credits
BSCI170&171	Principles of Molecular and Cellular Biology and Laboratory	4
ENST411 **or** PLSC461,462,463,464	Principles of Soil Fertility Cultural Management of Nursery and Greenhouse Systems (Substrates, Irrigation, Surface Water, Nutrients)	3/4
PLSC203	Plants, Genes and Biotechnology	3
PLSC100	Introduction to Horticulture	4
PLSC271	Plant Propagation	3
PLSC303	International Crop Production	3
PLSC400	Environmental Plant Physiology	4
PLSC432	Greenhouse Crop Production	3
PLSC433	Technology of Fruit and Vegetable Crop Production	4
Environmental Horticulture Specialization		**31-32**
Core Major Requirements		**48-49**
Additional General Education Requirements		**24-30**
Electives		**9-17**
Total		**120**

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the Director, Dr. B. Phillips (301-405-1061), or the Coordinator of Academic Programs in 2139 Plant Sciences Building (301-405-4359) for additional information.

Undergraduate Research Experiences

Students are encouraged to take part in faculty mentored research. Please contact an advisor for more information.

Internships

Internships are a part of the required curriculum and can be readily arranged for students interested in private or government sector employment.

Student Societies and Professional Organizations

The department sponsors student teams that participate in regional and national contests. These teams participate in competitions in the following areas: turf, weed and crop science, and landscape contracting.

Students enrolled in this major enjoy taking part in one or more of these teams.

Scholarships and Financial Assistance

Several scholarships and awards are available to AGST students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. For more information regarding these scholarships contact Sharde Davenport in 2104 Plant Sciences, 301-405-6244.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

American Studies (AMST)

College of Arts and Humanities
1328 Tawes Hall, 301-405-1354
amst.umd.edu
americanstudies@umd.edu
Chair: P. Williams-Forson
Professors: J. Paoletti, J. Wong

Associate Professors: J. Farman, C. Hanhardt, N. Mirabal, S. Parks, M. Sies (Undergrad Prog Dir), P. Williams-Forson
Assistant Professors: L. Bruce, P. Guerrero, J. Padios (Grad Prog Dir)
Instructors: M. Arnoldi (Res Assoc), M. Salazar-Porzio
Senior Lecturer: J. Maffie
Lecturers: A. Ali, R. Chester, L. Gordon, C. LaRoche, S. Pramschufer
Affiliate Professors: J. Auerbach, I. Berlin (Dist Univ Prof), A. Cabrera, C. Caramello, W. Cohen, B. Dill (Dean), J. Donawerth, W. Falk, M. Feldstein, J. Freidenberg, J. Greene, R. Grimm, R. Harrison, S. Kim, K. King, J. Klumpp, M. Leone, R. Levine, D. Linebaugh, B. Pearson, J. Quintero-Herencia, S. Ray, B. Richardson, G. Ritzer (Dist Univ Prof), P. Shackel, B. Shneiderman (Dist Univ Prof), S. Simpson, M. Smith, N. Stromquist, O. Wang, M. Washington, D. Wyatt, R. Zambrana, M. Zilfi
Affiliate Associate Professors: R. Ater, S. Barkin, E. Barkley Brown, R. Bauer, M. Bell, F. Carpenter, C. Eades, D. Freund, M. Geores, S. Giovacchini, I. Gournay, M. Graber, S. Harley, M. Kirschenbaum, M. Lindemann, S. Madhavan, R. Muncy, Z. Nunes, R. Ontiveros, J. Richardson, A. Rodriguez, L. Rowland, M. Rowley, D. Sicilia, J. Sullivan, O. Wang, P. Warfield
Affiliate Assistant Professors: S. Balachandran Orihuela, A. Lothian, W. Lung Amam
Adjunct Professors: B. Finn
Professors Emeriti: J. Caughey (Prof Emeritus), R. Kelly (Prof Emeritus), L. Mintz (Assoc Prof Emeritus), N. Struna

The Major

American Studies provides students with a flexible, coherent, and interdisciplinary program of study. We focus on the cultures of everyday lives and cultural constructions of identity and difference in Americans' lives, past and present, in a transnational and global framework. The B. A. degree prepares students for graduate work or careers in fields such as law, government and social policy, media, non-profit and social justice organizations, cultural institutions, education, and business. The department provides opportunities for internships, research, study abroad, and departmental honors. Each student meets every semester with a faculty advisor to plan an individualized course of study tailored to each student's interests and goals. American studies is a small department with a friendly atmosphere, faculty dedicated to teaching, and an excellent national academic reputation. Courses offered by the Department of American Studies may be found under the acronym AMST.

Program Learning Outcomes

Students are expected to engage fully with the curriculum, faculty, their fellow students, and the opportunities available for learning and research. Upon completion of the degree program, students will have demonstrated an understanding of multiple dimensions of diversity, possess the ability to answer research questions by using appropriate American Studies methodologies, and have acquired the following knowledge and skills:

- Understanding and applying interdisciplinary theories and methods.
- Understanding American Studies as a field, including current and emerging issues.
- Understanding of cultural literacy, including visual, textual and cybercultural literacies.

- Understanding the political and historical dimensions of culture.
- Understanding the importance of cultural diversity in American society.
- An ability to connect classroom and extracurricular learning in fostering active, engaged citizenship.

Admission to the Major

Students interested in declaring the American Studies major should make an appointment with the Undergraduate Program Director.

Requirements for the Major

The major in American Studies requires a minimum of 42 credits distributed as follows:

- AMST101 (required of all majors) - *3 credits*
- One AMST 1xx or 2xx-level course, e.g. AMST202, 203, 204, 205, 207, 212, 260, 298 - *3 credits*
- Two Americanist Foundation courses from a list of approved choices. Americanist Foundation courses are 1xx or 2xx-level courses in departments such as AASP, ARTH, ENGL, HIST, SOCY, and WMST. (The current list of courses approved for the requirement is posted on the department's web site: www.amst.umd.edu) - *6 credits*

Some or all of the 2xx-level courses may also fulfill General Education Requirements.

- Four 3xx or 4xx-level AMST courses - *12 credits*
- AMST340 - History, Theory and Methods in American Studies (required) - *3 credits*
- AMST450 - Seminar in American Studies (required) - *3 credits*

AMST340 and AMST450 constitute a sequence emphasizing independent research based on original sources and culminating in a senior thesis. AMST340 is a prerequisite for AMST450 and must be completed before enrollment in the senior seminar. The sequence is usually taken in the student's senior year.

- A Focus Area consisting of four 3xx or 4xx-level courses in another department or university approved minor. (A list of suggested Focus Areas can be found on the department's web site: www.amst.umd.edu.) - *12 credits*

At least twelve of the 3xx or 4xx-level credits must be at the 4xx-level. A grade of "C-" or better is required in every course submitted in fulfillment of major requirements. An overall GPA of 2.0 in the major is required for graduation.

Total credits: 42

Requirements for the Minor

Minor in U.S. Latina/o Studies

College of Arts and Humanities
4114 Susquehanna, 301-405-1354
www.uslt.umd.edu

The minor, which requires a total of 15 credits, is intended for students who wish to develop a specialization in U.S. Latina/o Studies alongside their degree pursuits. It is optimal for students engaged in work with U.S. Latina/o communities in a variety of professions and academic fields including history, literature, education, urban studies and planning, health care, social services, business, government, public policy, among others.

Requirements (15 credits)

A. Two 1xx or 2xx-level Foundation Courses (6 credits) - All students are required to take the two foundational courses:

USLT201 - U.S. Latina/o Studies I: An Historical Overview to 1960s
USLT202 - US. Latina/o Studies II: A Contemporary Overview, 1960s-Present.

B. One 3xx or 4xx-level Course (3 credits)

All students are required to take the 3xx or 4xx-level course: USLT 488/Senior Seminar in U.S. Latina/o Studies

C. Two 3xx or 4xx-level Elective Courses (6 credits)

In addition to the three required foundational courses, students will select two elective courses in consultation with the USLT advisor.

The elective courses will come from two of the following categories: Humanities, Social Sciences, Languages, and Education.

For these electives, students can choose USLT498/Special Topics in U.S. Latina/o Studies and from a list of pre-approved courses offered through other departments or programs. Elective courses will explore the historical, cultural, political, economic, and sociological dimensions of U.S. Latina/o experiences. These courses will be approved by the faculty advisory committee. Additional courses that include comparative U.S. Latino content, such as in LASC or GVPT, would be eligible for inclusion in the minor with the approval of the USLT advisor.

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advising in American Studies is mandatory every semester for all majors. Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

Majors in American Studies complete a research project for the senior seminars, AMST340 and 450. They are encouraged to gain additional research experience by working with individual faculty members and advanced graduate students or participating in one of the Department's Working Groups. See the Department website for more information about research: www.amst.umd.edu.

Internships

Juniors and seniors with a 2.5 GPA or better may apply 3 credits of internship (AMST386) to the 42 credits required for the major. Students must consult with a faculty advisor about a prospective internship prior to registration and complete and sign an internship contract. All internships must have an approved academic component. For further information, contact the Undergraduate Studies Director.

Honors Program

The departmental honors program offers outstanding students an opportunity to add distinction to their academic records by undertaking an independent research project in an area of particular interest to them.

The program is intended to allow students preparing for graduate study or a professional career to apply and further develop their research, analytic, and writing skills in an independent project of their own design, in consultation with a faculty mentor. Students are encouraged to make use of the rich resources of the Washington-Baltimore area, including major research institutions such as the Smithsonian Institution, the Library of Congress, and the National Archives.

Students in the honors program take two honors-designated courses and two semesters of AMST388 Honors Thesis, a total of twelve credits. Students enrolled in honors are excused from AMST450 Senior Seminar. These requirements fit *within the 42 credits required to complete the*

major. Participation in honors does not require additional coursework beyond the required 42 credits.

Eligibility: Students must have at least a 3.0 cumulative GPA at the time of entry into the program, and must maintain a minimum 3.0 GPA overall to remain in good standing. To graduate with honors in American Studies, students must have a 3.0 cumulative GPA and a GPA of 3.2 or higher in their major coursework.

Application: Students who wish to pursue Honors work should contact the Director of Undergraduate Studies at (301) 405.1354 during their junior year to discuss the program and application procedures.

Scholarships and Financial Assistance

The department awards the David Ellis Memorial Scholarship annually. For information and requirements, contact the American Studies office (301-405-1354).

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

Awards and Recognition

The department recognizes outstanding accomplishments by undergraduates at its commencement ceremony. Monetary prizes are awarded to the graduate with the highest cumulative GPA, to the author of the best Honors thesis, and to a graduate who has provided exceptional service to the campus or the community. The department also awards the Savneet Talwar Best Senior Paper Prize to an undergraduate who has authored an outstanding senior paper.

ANIMAL SCIENCES (ANSC)

College of Agriculture and Natural Resources
1415 Animal Sciences Center, 301-405-1373
http://ansc.umd.edu/
ansc@umd.edu
Chair: C. Stahl
Professors: C. Angel, R. Erdman, I. Hamza, C. Keefer, R. Kohn, R. Peters, T. Porter
Associate Professors: A. Burk, J. Song, W. Stricklin, L. Taneyhill, L. Woods, Z. Xiao, L. Yu, N. Zimmermann
Assistant Professors: D. Biswas, R. Dennis (Asst Prof), B. Kim, L. Ma (Asst Prof), K. Moyes, E. Orlando, B. Telugu
Lecturers: R. Apter, S. Balcom, A. Black (Coordinator), C. Hakenkamp
Affiliate Professors: S. Schoenian
Professors Emeriti: J. Doerr, L. Douglass, T. Hartsock, J. Heath, J. Majeskie, I. Mather, M. Ottinger, J. Soares, J. Vandersall, M. Varner, I. Vijay, D. Westhoff, W. Williams

The Major

The Department of Animal and Avian Sciences provides a challenging program for academically talented students interested in the application of biology and technology to the care, management and study of domestic and aquatic animals. In addition to emphasizing the traditional farm species of dairy and beef cattle, sheep, swine and poultry, our program includes options in equine studies, animal biotechnology, and sciences which prepare students for veterinary or graduate school. Animal sciences majors explore a wide range of subjects - from fundamental biology to animal nutrition, physiology and genetics - while integrating science and economics into animal management. Courses offered by this department may be found under the following acronym: ANSC

Our department offers B.S., M.S., and Ph.D. degrees. Roughly one-third of our animal sciences seniors enter veterinary school, while others go on to graduate school. Our graduates also pursue a variety of careers such as research technicians, sales or marketing representatives, or animal producers.

Program Objectives

The Department of Animal and Avian Sciences was formed in 1997 through the merger of the Animal Science, Dairy Science and Poultry Science Departments. Animal science is the study of domesticated animals used for food, biomedical research, and leisure. Our department fulfills a tripartite mission of research, teaching, and extension.

Program Learning Outcomes

Graduates of the ANSC undergraduate program will be able to:

- Articulate the basic housing, husbandry, dietary, and behavioral needs of the common domestic species.
- Safely handle horses, sheep, cows, pigs, and chickens.
- Select, understand, and critically evaluate scientific studies in animal sciences disciplines.
- Apply animal science knowledge to the creation of animal management programs (husbandry, health, reproduction, nutrition, etc).

Academic Programs and Departmental Facilities

Our facilities in the Animal Sciences Center include classrooms, an inviting lecture hall, and a large social area for students. The entire building is Wi-Fi accessible, and numerous charging outlets are available for student use. Our teaching facilities also includes two fully-equipped teaching labs and an aquaculture lab, while our animal wing contains animal rooms and a surgery suite.

The Campus Farm (http://ansc.umd.edu/undergraduate/campus-farm) has been described as a "jewel" to the ANSC undergraduate program activities. It is used extensively in teaching laboratories in undergraduate courses, and includes three barns separately used for horses, sheep, and dairy cows with temporary occupancy for pigs and beef heifers during short parts of the year. We are one of the few animal science departments with the presence of animals directly on campus. Three student organizations, the Institute for Applied Agriculture, and many "Ag Day" visitors use the farm as well, making it a focal point of our teaching facilities.

Admission to the Major

The Animal Science curriculum for all options is a rigorous and science-based programs. Students receive a solid foundation in basic biological sciences and ANSC courses are largely taught on a comparative basis, where students can then apply the knowledge they gain to a variety of species and situations.

Requirements for the Major

Animal Sciences prepares students for veterinary school, graduate school, and careers in research, sales and marketing, biotechnology, aquaculture, and animal production. The curricula apply the principles of biology and technology to the care, management, and study of dairy and beef cattle, horses, fish, sheep, swine, and poultry. Students complete the Animal Sciences core courses and choose a specialization area: Animal Biotechnology, Animal Care and Management, Equine Studies, or Sciences/Professional Option to prepare for admission to graduate, veterinary, pharmacy, nursing or medical school.

Students pursuing the major should review the academic benchmarks established for this program. See www.4yearplans.umd.edu or visit the ANSC Program Requirements (https://ansc.umd.edu/undergraduate/program-requirements) website. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

Please note: there is a $50 per course fee for Animal Science Laboratory courses.

	ANIMAL SCIENCES CORE	
	All undergraduates majoring in Animal Sciences must complete the following course requirements:	**Credits**
ANSC101	Principles of Animal Sciences	3
ANSC103	Principles of Animal Sciences Laboratory	1
ANSC211	Animal Anatomy	4
ANSC212	Animal Physiology	3
ANSC214	Animal Physiology Laboratory	1
ANSC314	Comparative Animal Nutrition	3
ANSC327	Molecular and Quantitative Animal Genetics	3
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI223	General Microbiology	4
CHEM131/132	General Chemistry I/Laboratory	4
	One from:	
MATH120	Elementary Calculus I	3
MATH140	Calculus I	4
	One from:	
AREC250	Elements of Agricultural and Resource Economics	3
ECON200	Principles of Micro-Economics	3
	ADDITIONAL COURSE WORK	
	All students must complete 30-40 credits in one of the following six options.	
	1. ANIMAL CARE AND MANAGEMENT (0104A) Required Courses	
ANSC315	Applied Animal Nutrition	3
ANSC340	Health Management of Animal Populations	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
AREC306	Farm Management	3
BSCI160&161	Principles of Ecology and Evolution and Lab	4
CHEM231	Organic Chemistry	3
	Plus take 9 credits from the following courses (Advanced ANSC Electives):	
ANSC330	Equine Science	3
ANSC435	Experimental Embryology	3
ANSC437	Animal Biotechnology	3
ANSC440	Zoonotic Diseases and Control	3
ANSC443	Physiology of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	3

ANSC452	Avian Physiology	3
ANSC453	Animal Welfare and Bioethics	3
ANSC455	Applied Animal Behavior	3
ANSC460	Comparative Vertebrate Immunology	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
	Plus take 9 credits from the following courses (Management Courses):	
ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC242	Dairy Cattle Management	3
ANSC250	Companion Animal Management	3
ANSC255	Introduction to Aquaculture	3
ANSC260	Laboratory Animal Management	3
ANSC262	Commercial Poultry Management	3
	2. EQUINE STUDIES (0104C) Required Courses	
ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC330	Equine Science	3
ANSC315	Applied Animal Nutrition	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
AREC306	Farm Management	3
BSCI160&161	Principles of Ecology and Evolution and Lab	4
CHEM231	Organic Chemistry	3
	Plus take 9 credits from the following courses (Advanced ANSC Electives):	
ANSC340	Health Management of Animal Populations	3
ANSC435	Experimental Embryology	3
ANSC437	Animal Biotechnology	3
ANSC440	Zoonotic Diseases and Control	3
ANSC443	Physiology of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC450	Animal Breeding Plans	3
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare and Bioethics	3
ANSC455	Applied Animal Behavior	3
ANSC460	Comparative Vertebrate Immunology	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
	Plus take ONE COURSE from the following courses:	
ANSC110	Hay and Pasture Management	2
ANSC233	Equine Behavior	2

ANSC236	Equine Business Management	3
ANSC237	Equine Reproduction	3
	3. & 4. SCIENCES & COMBINED AG AND VET SCI (0104E and 1299D) Required Courses	
ANSC315	Applied Animal Nutrition	3
BSCI160&161	Principles of Ecology and Evolution and Lab	4
	One from:	
BCHM463	Biochemistry of Physiology	3
BSCI330	Cell Biology and Physiology	4
CHEM231/232	Organic Chemistry I/Laboratory	4
CHEM241/242	Organic Chemistry II/Laboratory	4
CHEM271/272	General Chemistry and Energetics/ Laboratory	4
PHYS121	Fundamentals of Physics I	4
PHYS122	Fundamentals of Physics II	4
	Plus take 9 credits from the following courses (Advanced ANSC Electives):	
ANSC340	Health Management of Animal Populations	3
ANSC437	Animal Biotechnology	3
ANSC420	Critical Thinking in Animal Sciences	3
ANSC443	Physiology of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC446	Physiology of Mammalian Reproduction	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
ANSC450	Animal Breeding Plans	3
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare and Bioethics	3
ANSC455	Applied Animal Behavior	3
ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
	Plus take 3 credits from the following courses (Management Courses):	
ANSC220	Livestock Management	3
ANSC232	Horse Management	3
ANSC242	Dairy Cattle Management	3
ANSC250	Companion Animal Management	3
ANSC255	Introduction to Aquaculture	3
ANSC260	Laboratory Animal Management	3
	5. ANIMAL BIOTECHNOLOGY (0104F) Required Courses	
ANSC437	Animal Biotechnology	3
ANSC446	Physiology of Mammalian Reproduction	3

ANSC497	Animal Biotechnology Recombinant DNA Laboratory	3
BCHM463	Biochemistry of Physiology	3
BSCI330	Cell Biology and Physiology	4
CHEM231/232	Organic Chemistry I/Laboratory	4
CHEM241/242	Organic Chemistry II/Laboratory	4
CHEM271/272	General Chemistry and Energetics/ Laboratory	4
	Plus take 3 credits from the following course Management Courses):	
ANSC220	Livestock Management	3
ANSC242	Dairy Cattle Management	3
ANSC255	Introduction to Aquaculture	3
ANSC260	Laboratory Animal Management	3
ANSC262	Commercial Poultry Management	3
	Plus take 6 credits from the following courses (Advanced ANSC Electives):	
ANSC330	Equine Science	3
ANSC340	Health Management of Animal Populations	3
ANSC435	Experimental Embryology	3
ANSC440	Zoonotic Diseases and Control	3
ANSC443	Physiology of Lactation	3
ANSC444	Domestic Animal Endocrinology	3
ANSC447	Physiology of Mammalian Reproduction Laboratory	1
ANSC450	Animal Breeding Plans	3
ANSC452	Avian Physiology	3
ANSC453	Animal Welfare and Bioethics	3
ANSC455	Applied Animal Behavior	3
ANSC460	Comparative Vertebrate Immunology	3
ANSC330	Equine Science	3
ANSC340	Health Management of Animal Populations	3
ANSC435	Experimental Embryology	3
ANSC437	Animal Biotechnology	3
ANSC440	Zoonotic Diseases and Control	3

**A complete listing of all Management and Advanced ANSC Elective courses is available online*: http://ansc.umd.edu/undergraduate/course-listing/approved-mgmt-and-adv-ansc-courses

Other Requirements for the Major

Animal sciences majors select one of five options as an area of specialization. Program requirements (http://ansc.umd.edu/undergraduate/program-requirements) for all options are available on our website, along with a list of ANSC courses (http://ansc.umd.edu/undergraduate/course-listing) and when they are offered.

Science/Professional (0104E) - Prepares students for admission to veterinary or medical schools and/or graduate school. Graduate school study can open the door to an exciting research career in specialty areas of animal or biological sciences such as genetics, nutrition, physiology or cell biology. The curriculum emphasizes advanced courses in the biological and physical sciences and includes all the pre-veterinary and pre-medicine requirements.

Combined Ag & Vet Sci (1299D) - A combined degree program is available to students who gain admission to veterinary school prior to completing their bachelor's degree. College of Agriculture and Natural Resources students who have completed at least ninety hours, including all college and university requirements, are awarded a bachelor of science degree upon successful completion of at least thirty semester hours in an accredited college of veterinary medicine. Early planning with your advisor is encouraged if you choose this option.

Equine Studies (0104C) - Offers hands-on learning opportunities in the area of equine science and management. The Department of Animal and Avian Sciences at the University of Maryland offers undergraduate students the opportunity to emphasize on horses while pursuing a Bachelor of Science degree in Animal Science. Students may take equine courses that explore a wide range of topics including anatomy and physiology, nutrition, reproduction, exercise, law, insurance, facilities, health and disease, pasture management, and more. Our courses are designed to provide valuable hands-on learning experiences to better prepare students to be future leaders in the horse industry as well as other industries. In addition, ANSC students may take one or more equine courses within the Institute of Applied Agriculture.

Animal Biotechnology (0104F) - The Animal Biotechnology option is a relatively new addition to our program. It combines the basic required animal science courses with a focus on biology and technology. This option has a heavy emphasis on science courses, to prepare students for a professional career. Some of the career options with this track include: an industry career in animal biotechnology; a graduate degree in biotechnology (either MS and/or PHD); or a professional degree and career (Veterinary or Human Medicine, Nursing, Pharmacy.)

Animal Care & Management (0104A) - Is designed for students whose career plans include animal management, production and the marketing of animal products. The curriculum provides basic courses in genetics, nutrition, physiology and reproduction while allowing students to focus on the management of one particular livestock species. You will be encouraged to supplement academic work with practical experience by completing an internship. Dairy science students, for example, intern at local farms where they participate in decisions about breeding, feeding, health practices, milk production and other aspects of herd management. This option will prepare you for ownership or management positions with dairy, livestock or poultry production enterprises; positions with marketing and processing organizations; breed associations; and positions in agribusiness fields such as sales of feed, pharmaceutical products and agricultural equipment. Graduates also work with state and federal agencies.

Minimum Grade Policy:

ANSC has a minimum grade policy which states that **ANSC students must earn a "C-" or better in all major required courses, including ANSC courses and required supporting**

courses in other departments. More information on this policy is available on the ANSC website (http://ansc.umd.edu/undergraduate/program-requirements/minimum-grade-policy).

Advising

The Animal Science Department has mandatory advising, which means that a student must fulfill their advising requirement every semester prior to being allowed to register. Students in ANSC currently progress through advising in a system determined to help them explore their goals and get the most accurate information possible in their early advising. We want to help students transition from a typical high school model of advising being about school counselors helping them choose courses to students learning to make their own, independent education, career, and life choices under the mentorship of faculty. We refer to this as a program of "structured independence." For more information on Advising in ANSC (http://ansc.umd.edu/undergraduate/advising), including a detailed Advising Guide FAQ (http://ansc.umd.edu/undergraduate/advising/advising-guide), please visit our website.

Undergraduate Research Experiences

Because it is part of a land grant university, the Department of Animal and Avian Sciences also has responsibility for research and technology transfer to the animal industry throughout Maryland. During undergraduate study, students are encouraged to conduct independent research in faculty laboratories on campus or at the nearby U.S. Department of Agriculture Beltsville Agricultural Research Center. Students interested in a faculty member's research should directly contact that faculty member. Research jobs and opportunities are also frequently posted on the ANSC Undergraduate listserv, to which all ANSC students are subscribed.

Internships

Students are encouraged to gain practical hands-on and career experience by pursuing internships. Students have completed internships in locations ranging from the area around the University, to cattle farms in the Midwest, agribusiness firms in California, and places like the National Zoo in DC and the National Aquarium in Baltimore. Many animal sciences students use the summer to gain additional applied experience in animal sciences, veterinary medicine or agribusiness. Students can find information about internships, including the process for gaining academic credit for an internship, on the ANSC website (http://ansc.umd.edu/undergraduate/internships-careers). Internship opportunities are also frequently posted on the ANSC Undergraduate listserv, to which all ANSC students are subscribed.

Honors Program

Students admitted to the AGNR Honors Program are eligible to take 3 - 6 credits of Honors Thesis Research within the ANSC Department (ANSC388). Undergraduate honors thesis research is conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended before a faculty committee.

Student Societies and Professional Organizations

The clubs and organizations affiliated with the Animal Science department allow ample opportunities for leadership, development, hands-on animal experience, and fun!

ALPHA GAMMA RHO

Alpha Gamma Rho is a social/professional fraternity that has been a training ground for leaders in the agriculture and life sciences community since it was established at College Park in 1928. AGR has a rich tradition of alumni contacts with over 50,000 brothers nationwide, including over 700 brothers in the Washington area alone. AGR men are leaders in various clubs within the college and the fraternity is an active member of both the Inter-fraternity Council (IFC) and the Ag Student Council. Alpha Gamma Rho stresses scholarship, leadership and fellowship, and it is well respected among Greek organizations because of their no pledging, substance free, scholars environment. In addition, the chapter house on Princeton Avenue offers the opportunity to live with brothers who are taking the same classes and share many of the same interests which makes it much easier to find a niche on such a large campus.

Website: http://www.marylandagr.com/home

ALPHA ZETA

Alpha Zeta is an agricultural professional honor society whose membership is selected from undergraduate and graduate students excelling in scholarship, leadership, character, and service. Organizational events include coordinating the Partners in Education program with the USDA Agriculture Research Service, Beltsville Area, fund raising activities, community service projects, awards and recognition programs, and an annual student/faculty/alumni banquet. A popular annual event is coordinating a Field Day for young children at the nearby National Agricultural Research Visitor Center at Beltsville.

BLOCK AND BRIDLE CLUB

The Animal Husbandry Club at The University of Maryland, provides opportunities for students to gain animal handling experience, build interpersonal relationship skills, and students are given the encouragement to excel! Activities and experiences specifically designed for students of diversified interests in animal agriculture are provided, including experiences with many different domestic species. Membership is open to all undergraduate students interested in getting hands-on experience working with dairy, beef, sheep or swine, and learning more about general animal sciences. Activities include the Ag Day Dairy and Livestock Shows, Harvest Stomp/Fall Festival, fitting of animals for the annual Wye Angus Sale, and other activities working with dairy animals. One can gain further leadership skills by holding an office. Each Spring, elections are held for President, Vice-President, Secretary, Treasurer, and Historian.

Visit the Web Site: http://umdblockandbridle.wix.com/blockandbridle

COLLEGIATE 4-H

Many colleges and universities have Collegiate 4-H clubs. Collegiate 4-H is an organization that provides its members with a sense of identity on campus, enriches their lives through group projects and recreation, and develops confidence and leadership skills. Clubs provide service and support to their local and state 4-H programs, such as serving as judges and conducting training workshops. They are also a service and social group for campus students. Collegiate 4-H is open to all college students who wish to support youth and the 4-H program. It is not necessary to have prior 4-H experience, only to have an interest in the 4-H ideals and in serving your community.

UMCP Chapter Contact Info: umdcollegiate4h@yahoo.com
Visit the Web Site: http://northeastregion.collegiate4h.org

MANNRS (Minorities in Agriculture, Natural Resources and Related Sciences)

MANRRS Missions:
This club was reinstated on University of Maryland's campus to provide academic and professional advancement by empowering minorities in agriculture, natural resources and related sciences.

MANRRS Activities:
MANRRS' purpose is to promote exposure to agricultural related professions including veterinarians, lab animal techs, and jobs in the USDA, along with others to minorities. It lists internship opportunities, and holds annual conferences for its members from all chapters. It also serves as a networking tool for students interested in agriculture and related science professions.

Activities include: Club Meetings once a month; Fundraisers to provide funding for field trips to meetings at possibly University of Maryland at Eastern Shore; annual MANRRS conferences and job fairs; Volunteer Opportunities at SPCA; Guest Speakers in the veterinary medicine, agriculture, and lab animal medicine field.

Visit the Web Site: http://www.manrrs.org

MARYLAND EQUESTRIAN CLUB

The Maryland Equestrian Club provides on-campus horseback riding lessons and equine learning opportunities for campus students and faculty at beginner through advanced levels. The ANSC department provides the barn, equipment, riding arenas and horses while the students provide care for the horses. There is a riding fee of $200 per semester for 1 riding lesson a week for the entire semester. Large deductions are easily earned for help with feeding, cleaning stalls or teaching. Club members not riding are strongly encouraged to participate in other club activities, such as educational and fun seminars, field trips and monthly meetings. In the past, MEC members have attended the Columbia Grand Prix and the Washington International Horse Show and taken field trips to the DuPont Veterinary Medical Center in Leesburg, Va. and Days End Horse Rescue Farm in Maryland. Members have also participated in clinics on tack fitting and

identifying lameness in horses. Club members, under the leadership of the Executive Board and Directors, make most MEC club decisions. We offer a great opportunity to all students and we're always open to suggestions. We also try to have something for everyone including basic English equitation, Western equitation, dressage, bareback and trail riding, horse and farm management, veterinary care, teaching skills and much more. The MEC is located at the campus horse barn, and our office is in the Shack, right next to the paddocks. There is very limited space in the riding lessons, so e-mail us right away to reserve yourself a spot in the most educational equine club provided by the University of Maryland.

Contact: president.mec@gmail.com
Visit the Web Site: https://sites.google.com/site/marylandequestrianclub/

The Pre-Veterinary Society

The primary objectives of the The Pre-Veterinary Society are to: Promote a deeper understanding of the numerous opportunities in veterinary medicine; exchange information on veterinary and animal experiences, and. keep students updated on the latest veterinary school information.

What does the The Pre-Veterinary Society do?

- A variety of guest speakers are invited to club meetings to talk about their specialties or field of interest. A sample of topic include wildlife rehabilitation, laboratory animal medicine, exotic pet care and veterinary ethics.
- Each year, faculty from the Virginia-Maryland Regional College of Veterinary Medicine speak to club members about veterinary medical school. Mock interviews are held in January to prepare our club members for the admissions process.
- Club sponsored trips offer our members the ability to tour various veterinary medical facilities and talk to veterinary students and faculty and to visit local zoos and animal care facilities.
- Each year we participate in the APVMA National Symposium which is held at different veterinary schools annually. This is an excellent opportunity to visit a vet school, plus hear over 30 speakers on numerous topics and participate in a variety of wet and dry lab.
- Volunteer with the Prince George's County Animal Shelter in partnership with PetSmart to help find homes for abandoned animals

Website: http://umd.orgsync.com/org/prevetumd/home

SIGMA ALPHA

Sigma Alpha is a national professional agricultural sorority. The objective of the sorority is to promote its members in all facets of agriculture and to strengthen the friendships among them. Members strive for achievement in scholarship, leadership, service, and to further the development of women pursuing careers in agriculture. Sigma Alpha works to promote agriculture, and women's role, on our campus, in our community and throughout the state. Activities include: attending regional and national conferences/conventions; participating

in college events (Fall Bash, ANSC orientation, Cook-Offs); service activities - including teaching agriculture to local elementary students and judging contests for the Maryland FFA; professional Guest speakers, and participating in MD day/Ag day Membership rush is held on a semester basis. To be eligible, potential members must have: 2.25 cumulative GPA, Agriculture major or sincere interest in agriculture, be a member of 1 other group or Enrolled in 18 credits or working 10 hours a week.

Visit the Web Site: http://www.sigmaalphaumd.org/home

UNIVERSITY OF MARYLAND EQUESTRIAN TEAM

The University of Maryland Equestrian Team is a sports club that competes in intercollegiate competition through the Intercollegiate Horse Show Association (ihsainc.com). Throughout the year we compete against area schools such as Goucher, UMW, American, and many others. Though showing is available to all team members, it is not required. Our team rides once a week at Oatland Stables in Gaithersburg, MD. Additionally, our members have the opportunity to participate in clinics and other horse-related events. Riders ranging from the levels of walk/trot to open jumping (3' courses) are welcome to join our team. Please feel free to send any questions to the email below. Also, like our page "Terps Equestrian Team" on Facebook (https://www.facebook.com/pages/Terps-Equestrian-Team/112106182178428)!

Contact: Equiterps@gmail.com

Terps Roots and Shoots

Our club is based on the belief that no world issue can be solved by only helping animals or people or the environment. Therefore, our mission is to create programs each semester, which will help benefit all three. Members will be involved in volunteer work such as organizing food packages for the homeless, cleaning the Chesapeake Bay, and working at animal rescues. We look forward to seeing the impact our club will have on the community through its diverse volunteering experiences.

Contact: terpsrns@gmail.com
Website: http://www.facebook.com/pages/Terps-Roots-Shoots/162513503778223?v=info

Scholarships and Financial Assistance

The ANSC program administers several scholarships, including:

Judith E. Brocksmith Pre-Veterinary Scholarship, Dodson Memorial Scholarship, C.W. England, Tom Hartsock Animal Management Scholarship, the Kinghorne Fund Fellowship, and the Lillian Hildebrandt Rummel Scholarship. For eligibility criteria, visit the ANSC website: https://ansc.umd.edu/undergraduate/scholarships

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

ANSC Faculty and students have been the recipients of numerous prestigious awards and honors. To read more about our exceptional community, visit the ANSC website (https://ansc.umd.edu/about/awards-and-honors)!

Anthropology (ANTH)

College of Behavioral and Social Sciences
1111 Woods Hall, 301-405-1423
www.bsos.umd.edu/anth
Chair: P. Shackel
Professors: J. Chernela, J. Freidenberg, M. Leone, M. Paolisso
Associate Professors: S. Brighton, B. Pavao-Zuckerman
Assistant Professors: S. Downey, C. Getrich, G. Hambrecht, A. Heller, K. Lafrenz Samuels, A. Lopez, T. Sangaramoorthy, L. Shaffer
Lecturers: M. London, J. Messing
Affiliate Professors: A. Bolles (WMST), L. Frederik Meer (THET), J. Hanna, R. Harrison (CMLT, LASC), S. Kim (WMST), D. Linebaugh (HISP)
Adjunct Professors: S. Abbott-Jamieson (NOAA), M. Butler, T. Cederstrom, C. Crain (LTG Associates), S. Fiske (NOAA), A. Froment, S. Huertin-Roberts, J. Kunen (USAID), B. Little (National Park Service), F. McManamon (National Park Service), M. Mieri (Smithsonian), C. Puentes-Markides, D. Russell (USAID), J. Schablitsky (MD SHA), J. Schneider, R. Sobel (Smithsonian), N. Tashima (LTG Associates), R. Winthrop (BLM)
Professors Emeriti: M. Agar, E. Chambers, N. Gonzalez, F. Jackson, T. Whitehead

The Major

Anthropology, the study of culture, seeks to understand humans as a whole - as social beings who are capable of symbolic communication through which they produce a rich cultural record. Anthropologists try to explain differences among cultures - differences in physical characteristics as well as in customary behavior. Anthropologists study how culture has changed through time as the human genus has spread over the earth. Anthropology is the science of the biological evolution of human species, and the disciplined scholarship of the cultural development of human beings' knowledge and customary behavior.

Anthropology at the University of Maryland offers rigorous training for many career options. A strong background in anthropology is a definite asset in preparing for a variety of academic and professional fields, ranging from the law and business, to comparative literature, philosophy and the fine arts. Whether one goes on to a Master's or a Ph.D., the anthropology B.A. prepares one for a wide range of non-academic employment, such as city and public health planning, development consulting, program evaluation, and public archaeology. A Bachelor of Science in Anthropology degree offers more concentrated training including physical science in the areas of

archaeology, ecological anthropology and medical anthropology. Courses offered by this department may be found under the acronym ANTH.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

- Students shall have an integrated knowledge, awareness and understanding of a culturally and biologically diverse world.
- Students shall demonstrate an understanding of culture and society.
- Students shall demonstrate the ability to understand complex research problems, and articulate appropriate methods and theory.

Academic Programs and Departmental Facilities

The Anthropology department offers beginning and advanced course work in four principal subdivisions of the discipline: archaeology, cultural anthropology, ecological anthropology, and medical anthropology. Within each area, the department offers some degree of specialization and provides a variety of opportunities for research and independent study. Laboratory courses are offered in ecological anthropology. Field schools are offered in archaeology. The interrelationship of all branches of anthropology is emphasized.

The Anthropology department has a total of five laboratories, which are divided into teaching labs and research labs. The department's four archaeology labs, containing materials collected from field schools and research projects of the past several years, serve both teaching and research purposes. The other laboratory is a teaching laboratory in ecological anthropology. The Center for Heritage Research Studies, located in the Department of Anthropology, focuses on research devoted to understanding the cultural characteristics of heritage and its uses.

The undergraduate curriculum is tied to the department's Master in Applied Anthropology (M.A.A.) program; accordingly, preparation for non-academic employment upon graduation is a primary educational goal of the department's undergraduate course work and internship and research components. The department also has a Doctor of Philosophy (PhD) program. Students at the graduate level are asked to focus in one of three areas of faculty expertise: Health, Heritage, and Environment.

Requirements for the Major

Students may seek an undergraduate Bachelor of Arts degree or a Bachelor of Science degree. Every course used to satisfy anthropology major requirements must be completed with a grade of "C-" or higher. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements.

ANTHROPOLOGY DEGREE REQUIREMENTS

All courses are three credits unless otherwise indicated.

I. Foundational Courses (3)

Three of the following four foundation courses are required for all anthropology majors:

- ANTH210: Introduction to Medical Anthropology and Global Health
- ANTH222: Introduction to Evolutionary and Ecological Anthropology (4 credits)
- ANTH240- Introduction to Archaeology
- ANTH260- Introduction to Socio-cultural Anthropology and Linguistics

II. Method and Theory Courses (2)

Two of the following four method and theory courses are required for all anthropology majors:

- ANTH310: Method & Theory in Medical Anthropology and Global Health
- ANTH322- Method & Theory in Ecological Anthropology
- ANTH340- Method and Theory of Archaeology
- ANTH360- Method and Theory of Socio-Cultural Anthropology

III. Anthropology Electives (minimum of 12 credits)

All Anthropology majors are required to complete at least 12 credits of courses offered in anthropology, not double-counted for other Anthropology requirements.

IV. Applied Field Methods (minimum of 3 credits)

ANTH271: Digital Ethnography, ANTH341: Introduction to Zooarchaeology, ANTH447: Material Culture Studies in Archaeology, ANTH451: Environmental Archaeology, ANTH464: Anthropology of Cultural Heritage, ANTH467: Researching Environment and Culture, ANTH468P: Anthropology, War & Security, ANTH472: Medical Anthropology, ANTH491: Applied Urban Ethnography (4 cr.), ANTH492: Anthropology of the Immigrant Life Course, ANTH498C: Environmental Conservation and Indigenous People in Brazil (6 cr.)

ANTH496: Field Methods in Archaeology, 6 cr. (Students with an archaeological focus must take this class)

V. Quantitative Skills Requirement

For a Bachelor of Arts BIOM301, ECON201, ECON321, EDMS451, GEOG306, PSYC200, SOCY200, STAT100, MATH107 or a higher level MATH class is required.

For a Bachelor of Science two courses of the following are required: STAT100: Introduction to Statistics, MATH140: Calculus I (4 cr.), MATH141: Calculus II (4 cr.), MATH120: Elementary Calculus I (4 cr.), MATH121: Elementary Calculus II (4 cr.)

VI. Supporting Course Work

For a Bachelor of Arts degree 18 credits of supporting courses approved by a faculty member

For a Bachelor of Science degree 3 courses from the following are required*:*

AGNR301 Sustainability, AREC241 Environment, Economics and Policy (4 cr.), *AREC326 Intermediate Applied Microeconomics, AREC345 Global Poverty and Economic Development, AREC365 World Hunger, Population and Food Supplies, AREC433 Food and Agricultural Policy, *AREC453 Natural Resources and Public Policy, AOSC 123 Causes and Implications of Global Change, BSCI103: World of Biology, BSCI170/1 Principles of Ecology and Evolution (4 cr.), BSCI160/1 Principles of Molecular and Cellular Biology (4 cr.), BSCI135 Plants that Transformed the World (4 cr.), BSCI189 Beyond Race: Human Biological Diversity (4 cr.), BSCI201 Human Anatomy and Physiology I (4 cr.), BSCI202 Human Anatomy and Physiology II (4 cr.), *BSCI222 Principles of Genetics (4 cr.), BSCI223 General Microbiology (4 cr.), *BSCI360 Principles of Animal Behavior, *BSCI361 Principles of Ecology (4 cr.), *BSCI363 Biology of Conservation and Extinction, *BSCI370 Principles of Evolution, *BSCI462 Population Ecology, *BSCI471 Molecular Evolution, CMSC 131 Object-Oriented Programming I (4 cr.), CMSC 132 Object-Oriented Programming II (4 cr.), ENST233 Introduction to Environmental Health, ENST440 Crops, Soils, and Civilizations, GEOL100/110: Physical Geology and Laboratory (4 cr.), *GEOL 340: Geomorphology, *GEOL 342: Stratigraphy and Sedimentation, *GEOL 446: Geophysics, GEOG 330 Society and Sustainability, GEOG 332 Economic Geography, GEOG 372: Remote Sensing, GEOG 373: Geographic Information System, *GEOG 416 Conceptualizing and Modeling Human Environment Interactions, GEOG 431 Culture and Natural Resource Management, *GEOG 472: Remote Sensing: Digital Processing and Analysis, *GEOG 473: Geographic Information System and Spatial Analysis, *MIEH300 Introduction to Environmental Health, MIEH321 Syphilis to SARS: Climate Change, Development and Emergence of Infectious Diseases, HLTH130: Introduction to Public and Community Health, HLTH200: Introduction to Research in Community Health, *HLTH300: Biostatistics for Public Health Practice, HIST 204: History of Science

*prerequisites apply

Advising

The primary advisor for students in the Anthropology major is the Undergraduate Advisor. The advisor is available to students during appointments, walk-in hours, and by phone and email. The advisor is responsible for helping students plan their successful completion of the Anthropology major. Students will work with the advisor for an orientation to the department, status on degree progress, administrative approval for special course enrollment, academic audits, and graduation clearance. In addition, students should consider the Undergraduate Advisor a resource for general academic and career advice during their time at Maryland.

The office of the Undergraduate Advisor is supervised and supported by the Director of Undergraduate Studies (a faculty member) in the Department of Anthropology. In addition, all faculty members in the department may serve as faculty advisors to students. For more information, or to contact the Director of Undergraduate Studies or Undergraduate Advisor, please call 301-405-1423 or go to www.bsos.umd.edu/anth.

Undergraduate Research Experiences

There are several undergraduate research experiences available for students. For more information, please see our website: www.bsos.umd.edu/anth.

Fieldwork Opportunities

The Department of Anthropology encourages students to explore its field school and study abroad opportunities which include, summer archaeology field schools including field schools in Iceland and Ireland, and an ethnographic field school in the Brazilian Amazon.

For more information, see our website: www.bsos.umd.edu/anth.

Internships

All undergraduate students are encouraged to do an internship. There are many non-profit and government agencies in the Baltimore-Washington area that are willing to support Anthropology interns. For more information, please contact the Director of Undergraduate Studies or the Undergraduate Advisor.

Honors Program

The Anthropology department also offers an Honors Program that provides the student an opportunity to pursue in-depth study of his or her interests. Acceptance is contingent upon a 3.5 GPA in anthropology courses and a 3.0 overall average. The Honors Citation is awarded upon completion and review of a thesis to be done within the field of anthropology. For additional information, students should contact the Director of Departmental Honors Program, Dr. Stephen Brighton, 301-405-3700; E-mail: sbrighto@umd.edu.

Student Societies and Professional Organizations

Anthropology Student Association (ASA): An anthropology student association that meets regularly to plan student events and to help coordinate various student and faculty activities. For meeting times contact the Undergraduate Advisor.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Arabic Studies (ARAB)

College of Arts and Humanities
3125 JimÃ©nez Hall, 301-405-4025
http://sllc.umd.edu/arabic/
Associate Professors: V. Anishchenkova
Assistant Professors: S. Elsisi, P. Glanville
Senior Lecturer: L. Alkebsi, D. El-Hefnawy
Lecturers: Z. El Amine

The Major

This 42-credit major in Arabic Studies provides students with a solid background in linguistic, literary, and cultural aspects of the modern Arab World, including the cultural domains of North Africa, Egypt, Arab Middle East, Arab diasporas in the U.S. and Europe, and minority communities in Arab countries (Armenian, Kurdish, Berber, Copts, etc.). The B.A. in Arabic Studies (ARAB) prepares students for a range of professional opportunities, including careers in government, education, business, and international development and communication. Students work toward competence in speaking, reading, writing, and listening. The Arabic Program offers extensive linguistic training in both literary Arabic (*fusHa*) and Arabic dialects (Egyptian and Levantine). Students will achieve cultural fluency by exploring diverse Arab societies and cultural zones and will learn to approach them from a global perspective. Many undergraduates will choose to double major or do a double degree in Arabic and another subject, including arts and humanities majors, business, computer science, and journalism.

Program Learning Outcomes

- Students will be able to interact at the Advanced level of proficiency in a way that mirrors native-speaker norms in a variety of non-specialist contexts.
- Students will demonstrate comprehension of authentic written and oral texts intended for a native-speaker audience, including news articles, editorials, and literary texts.

- Students will produce written texts in Modern Standard Arabic at the advanced level of proficiency.
- Students will demonstrate awareness of important issues in Middle Eastern culture, and the ability to pursue a topic in depth at a level of analysis appropriate to an area specialist.

Placement in Courses

http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Prerequisites (12 credits)
Students must take the prerequisite courses or satisfy these requirements by placement:*
ARAB104 Elementary Modern Standard Arabic I-II (6 credits)
ARAB105 Elementary Modern Standard Arabic III-IV (6 credits)

Core Sequence: 24 credits

ARAB204	Intermediate Modern Standard Arabic I	(6 credits; prereq ARAB105)*
ARAB205	Intermediate Modern Standard Arabic II	(6 credits; prereq ARAB204)
ARAB304	Advanced Modern Standard Arabic I	(prereq ARAB205)
ARAB305	Advanced Modern Standard Arabic II	(prereq ARAB304)
ARAB206	Intermediate Egyptian Colloquial Arabic III	(prereq ARAB205)*
ARAB207	Intermediate Egyptian Colloquial Arabic IV	(prereq ARAB206)
ARAB210	Intermediate Levantine Colloquial Arabic III	(prereq ARAB205)*
ARAB211	Intermediate Levantine Colloquial Arabic IV	(prereq ARAB210)

*Modern Standard Arabic is the formal variety of Arabic used throughout the Arab world, particularly for reading and writing. Egyptian Colloquial Arabic and Levantine Colloquial Arabic are among the major spoken varieties in the Middle East. All Arabic language courses implement the integrated method where Modern Standard Arabic and colloquial Arabic are taught simultaneously, as two registers of the Arabic linguistic discourse. Upon completing four semesters of Arabic (104, 105, 204, 205), students may choose to take either the Egyptian dialect sequence (206, 207) or the Levantine dialect sequence (210, 211) to deepen their knowledge of the dialect and culture.

Once credits have been received for a higher-level language focus course, a lower-level course in the same strand (written or spoken) may not be taken for credit. (ARAB204 may not be taken after ARAB205, for example. ARAB107 may not be taken after ARAB206, etc.)

The Arabic language curriculum is designed for second language acquisition and targets non-native speakers. None of the Arabic language courses are open to fluent and native speakers of Arabic.

Electives: a minimum of 18 credits

A. Required 3xx or 4xx level in Arabic (a minimum of 9 credits)

ARAB311	The Arab World Today	(pre-coreq ARAB304)
ARAB312	Islamic Culture	(pre-coreq ARAB304)
ARAB321	Arab Media	(pre-coreq ARAB304)
ARAB322	Commercial Arabic	(pre-coreq ARAB304)
ARAB401	Readings in Arabic Literature	(prereq ARAB305)
ARAB402	Arabic Translation	(prereq ARAB305)
ARAB411	U.S. - Arab Relations	(prereq ARAB305)
ARAB412	Modern Arabic Literature: A Survey	(prereq ARAB305)
ARAB499	Special Topics in Arabic Studies	

- Other ARAB courses may be included on written approval of UG advisor.
- All pre-requisites imply "or equivalent knowledge." In cases of equivalent knowledge, required language-focus credits are replaced in consultation with, and with the written approval of, the undergraduate advisor.
- The majority of content courses taught in Arabic are not open to fluent and native speakers of Arabic.

B. Optional Electives in English: a maximum of 9 credits (no prereqs)

ARAB251	Arabic Cinema
ARAB252	Arabic Literature in Translation
ARAB298	The Arabian Nights and the Art of Storytelling
ARAB351	Arab Culture and Civilization
ARAB499	Special Topics in Arabic Studies

Certain courses in Middle Eastern Studies taught in English in other departments (depending on the content of the courses) can be substituted with the approval of the Undergraduate advisor and Program Director.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

For information on study abroad programs see the program advisor and/or the Education Abroad website: www.international.umd.edu/studyabroad.

Requirements for the Minor

Arabic

School of Languages, Literatures, and Cultures (SLLC)
www.arabic.umd.edu

The minor in Arabic (21 credits) provides a solid grounding in Modern Standard Arabic and colloquial Arabic. Students who satisfy the requirements of the minor in Arabic can expect to be able to read and write and communicate orally in Modern Standard Arabic and one of the Arabic dialects at a level that would allow them to interact with native speakers and perform effectively in a daily environment, watch TV and films in Arabic, engage with authentic texts, write short papers in Arabic, and perform other tasks expected from an Advanced Level learner.

The materials used to further language acquisition are culturally rich resources, and students completing the minor will have become familiar with many of the cultural patterns, social issues, historical events, artistic traditions, and elements of daily life of the people whose cultures are rooted in Arabic. Students interested in pursuing the minor in Arabic should contact the undergraduate advisor, who will be responsible for oversight and record keeping.

Students should declare the minor in Arabic at least one year prior to graduation.

Prerequisites (12 credits):

		Credits
ARAB104	Elementary Modern Standard Arabic I-II	6
ARAB105	Elementary Modern Standard Arabic III-IV	6

No prerequisites are required for students with equivalent knowledge. Placement testing is mandatory.

Courses required for Minor (21 credits):

All prerequisites imply "or equivalent knowledge."

		Prerequisite	**Credits**
ARAB204	Intermediate Modern Standard Arabic I	ARAB105	6
ARAB205	Intermediate Modern Standard Arabic II	ARAB204	6
ARAB304	Advanced Modern Standard Arabic	ARAB205	3
ARAB305	Advanced Modern Standard Arabic	ARAB304	3
ARABXXX	Additional 3xx or 4xx level course taught in Arabic* **Contact the minor advisor for approved courses*		3
			21

Notes:

- Once credits have been received for a higher-level language focus course, a lower-level course in the same strand may not be taken for credit. (For example, ARAB204 may not be taken after ARAB205).
- In cases where a student has equivalent knowledge, required courses are replaced in consultation with minor advisor. All courses applied to the minor must be taught in Arabic.
- Students who begin their study as heritage speakers must seek the advice and written permission of the advisor before choosing the courses they will use to replace any required minor courses.
- A maximum of 6 credits can be applied to the minor from courses taken at other institutions. No more than 6 credits of the minor may be used to satisfy the requirements of a major. No courses in the minor may count toward another minor.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to: www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Zein Elamine zelamine@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Architecture (ARCH)

School of Architecture, Planning and Preservation
1200 Architecture Building, 301-405-8000
www.arch.umd.edu
archadvise@umd.edu
Director: B. Kelly (Prof & Area Chair, Prof)
Professors: M. Bell (Prof, Affiliate Prof), D. Cronrath (Prof And Dean, Prof), S. Hurtt (Prof), B. Kelly (Prof & Area Chair, Prof), G. Rockcastle (Prof)
Associate Professors: C. Bovill (Assoc Prof), R. Eisenbach (Assoc Prof), I. Gournay (Assoc Prof), H. Koliji (Assoc Prof), M. Simon (Assoc Prof)
Assistant Professors: M. Hu (Asst Prof), M. Lamprakos (Asst Prof), P. Noonan (Prof Of Practice)
Lecturers: M. Allen (Lecturer), K. Ambrose (Lecturer), M. Binder (Lecturer), L. Escobal (Lecturer), C. Field (Lecturer), B. Grieb (Lecturer, Proj Mgr), B. Leggs (Lecturer), E. Northen (Lecturer), A. Rubeling (Lecturer), J. Tilghman (Lecturer)
Associate Clinical Professor: M. Ambrose (Assoc Clin Prof)
Assistant Clinical Professor: A. Gardner (Asst Clin Prof)
Professors Emeriti: W. Bechhoefer (Prof Emeritus), R. Bennett (Prof Emeritus, Lecturer), K. Du Puy (Prof Emeritus), R. Etlin (Dist Univ Prof Emeritus), G. Francescato (Prof Emeritus), J. Hill (Prof Emeritus), R. Lewis (Prof Emeritus), J. Loss (Prof Emeritus), B. Schlesinger (Prof Emeritus), R. Vann (Prof)

The Major

The undergraduate program in architecture develops critical thinkers, problem solvers and skilled professionals ready to take on the challenges of sustainable design. Our prime location between Washington, D.C., and Baltimore offers many advantages: a faculty of highly respected scholars and practitioners; alumni connections and careers at countless architectural firms; and rich architectural diversity. Begin your journey to a more sustainable and environmentally balanced world right here.

The first two years of the curriculum focus on developing a broad-based and well-rounded liberal education, complemented by courses that introduce you to architecture. You'll be exposed to the many resources and opportunities of the university while refining your academic and career interests. We offer you two degree options that are tailored to fit your particular academic and career interests. The **Bachelor of Science** curriculum is centered on design studios, with

complementary coursework in architectural history, theory, technology and visual media. The studio courses offer unique experiences where you'll not only have the opportunity to show your design skills but also work with communities to help solve real-world problems.

One unique feature of the **Bachelor of Arts** program is your ability to pursue an academic path that reflect your passions and interests. It's not uncommon for students to discover that their interest in architecture reveals other career aspirations. Earning a bachelor of arts in architecture allows you to build a foundation in architecture while preparing for careers in business, urban planning, real estate development or historic preservation, just to name a few.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice and research. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation.

Program Objectives

The School's mission is to educate Architects, Planners, Preservationists, Developers and the many allied stakeholders whose work and scholarship focuses on the quality of the built environment and promotes social justice, cultural value, resource conservation and economic opportunity.

We take advantage of our unique location—in a region that features the nation's capital and the post-industrial City of Baltimore, and links the Appalachian Mountains to the Atlantic Ocean while surrounding the Chesapeake Bay. Maryland's opportunities and challenges are found in its diverse communities, explosive growth and extensive historic resources.

Our faculty, students and alumni collaboratively advance their vision and commitment through research, teaching, colloquia, writing, creative design, planning, policy formation and professional work. Our mission is historically rooted in our land grant mandate and enhanced by our regional and international activities.

Academic Programs and Departmental Facilities

Architecture Library
Located on the second floor of the Architecture Building, the Architecture library has planning and architecture books and periodicals, as well as Urban Studies and Planning studio reports. There is also a slide collection available in the Elizabeth D. Alley Visual Resources Collection on the same floor. Librarians are available by appointment to assist with your research needs.

Visual Resources Center
The VRC consists of more than 400,000 digital images documenting architecture and the urban scene from pre-historic times to the present. Related topics include urban design, historic preservation, real estate development, art, landscape architecture, as well as events around the School. Other visual materials include over 400 DVDs and videotapes, along with lantern slides

and photographs. Images are acquired through site photography, scanning materials, commercial vendors, and donations from faculty and students.

Images and other materials may be used for presentations in school classes and for research.

Fabrication Lab
The FabLab at the School of Architecture Planning and Preservation emphasizes the notion of learning to design through the process of making. Our students learn to influence the form and meaning of the built environment by working directly with its material and physical nature. We stress the integration of digital and hand fabrication methods, and explore how traditional technology is affected and transformed by new materials and technique.

Admission to the Major

Freshman applicants:

http://www.admissions.umd.edu/apply/freshmanapplication.cfm

Transfer applicants:

http://www.admissions.umd.edu/requirements/TransferStudents.php

Advising

Advising appointments and school tours are conducted by the Office of Student Services, who can help you navigate admissions, course registration, degree planning and other issues.

Contact Advising by E-mail

Undergraduate Architecture students
Contact archadvise@umd.edu with advising questions.

To schedule an appointment with the advisors, please visit: http://arch.umd.edu/arch/student-services-arch

Advising for undergraduates in the School is mandatory each semester.

Internships

A career fair is organized annually and all internship/career opportunities are handled by the Director of Career Services within the School itself and in conjunction with the University Career Center.

Student Societies and Professional Organizations

The Architecture Student Assembly represents the student body. Assembly members are elected from undergraduate and graduate classes. Representatives attend Faculty Meetings, serve on committees, and organize the Architecture Program Retrospective at the end of each semester.

The School of Architecture, Planning, and Preservation sponsors a chapter of the American Institute of Architecture Students (AIAS), the national association for architecture students. The AIAS chapter sponsors a variety of activities including an annual Career Fair, Beaux Arts Ball, field trips, conferences, workshops, and other events throughout the academic year.

The University of Maryland chapter of NOMAS is affiliated with the national professional organization NOMA. NOMAS is a group of students from a variety of backgrounds pursuing architecture degrees at the undergraduate and graduate levels, interested in contributing to the UMD School of Architecture, Planning and Preservation by building a sense of community based on shared experiences unique to our diverse student body.

Women in Architecture – In a field that is predominantly male dominated, it is vital to fill the absence of a well established community to specifically empower women. Through weekly meetings and planned events, members can discuss and understand how to spread the empowerment of all women as well as build a network of a aspiring and established female architects and designers. If this is something you are interested in being apart of, please join our professional organization. Both men and women are encouraged to participate and become members of WIA.

Alpha Rho Chi (APX) is the national co-ed fraternity for architecture and the allied arts. Its brotherhood unites men and women for the purpose of fellowship and lifelong friendships, as well as professional development. This is exemplified by the fraternity's motto: Fidelitas, Amor et Artes or "Fidelity and Love of the Arts."

Scholarships and Financial Assistance

Please visit our website for scholarship opportunities for current students:
http://arch.umd.edu/arch/scholarships

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Art (ARTT)

College of Arts and Humanities
1211-E Parren J. Mitchell Art-Sociology Building, 301-405-7790
www.art.umd.edu
artdept@umd.edu
Chair: W.C. Richardson - Painting/Drawing
Professors: J. Ruppert - Sculpture, F. Sham - Sculpture
Associate Professors: A. Buck-Coleman - Graphic Design/Social Practice, P. Craig - Painting/Drawing, H. Elahi - Media Arts/Art Theory/Social Practice, R. Klank - Painting/Art Theory, B. Morse - Digital Media, J. Strom - Printmaking; Graduate Director, J. Thorpe -2D Foundation/Design and Illustration
Assistant Professors: S. Collis - Digital Media/Printmaking, L. Zahabi - Graphic Design, Interactive Design
Senior Lecturer: W. Jacobs - Undergraduate Director; 2D Foundation; (Associate Dean-ARHU), R. Weil - Art Theory/Senior Lecturer
Lecturers: L. Berns - 2D Foundation/Drawing/Art Theory, T. Bunnell (Lecturer), E. Conover - Painting/Drawing, L. Hoover - Painting/Drawing/Theory, S. Jones - Sculpture/Foundation/Drawing, R. Kheiriyeh (Consultant PT, Lecturer), M. McLaughlin - Printmaking/Drawing/2D Foundation, N. Ratnapala - Digital Media/Video, J. Wyszomirska (Lecturer)
Professors Emeriti: C. Demonte (Distinguished Scholar-Teacher), D. Driskell (Distinguished University Professor), T. Lapinski, R. Lozner - Graphic Design

The Major

The Department of Art provides its students with the technical and conceptual tools needed to make innovative contributions to a visual culture in which traditional boundaries between the visual arts, design, film, video, and architecture have become increasingly blurred. The accomplished faculty members bring their professional experiences to the studio, providing a contemporary context for the development of skills and ideas. The department's creative environment encourages creative problem solving, interdisciplinary experimentation, and the production of images, objects, and experiences that reflect a sophisticated visual literacy. From a shared foundation emphasizing traditional fundamentals of art and design, students move into media concentrations that encourage interdisciplinary interaction, particularly in developing digital technologies. This flexible interaction between traditional and new media is central to the department's vision and the success of its mission.

In a society that increasingly defines itself in visual terms, artists and designers are critical in shaping its future. The creative atmosphere of the Department of Art's studios is a fertile ground for the development of the complex skills and ideas needed to navigate and contribute to an evolving visual culture. Our location, just outside Washington, DC, and less than an hour away from Baltimore provides access to numerous museums, galleries, embassies and international institutions, which brings important real-world experience to students in our program.

Program Objectives

Please go to Department of Art website for more information: www.art.umd.edu.

Program Learning Outcomes

Please go to Department of Art website for more information: www.art.umd.edu.

Academic Programs and Departmental Facilities

Please go to Department of Art website for more information: www.art.umd.edu.

Admission to the Major

The Department of Art offers three tracks to the B.A. degree. Track 1 is an open major, which requires no portfolio review, and requires 48 total credits for completion. All majors enter the department in Track 1.

Tracks 2 and 3 are specialized tracks with portfolio reviews for admission in the Junior and Senior years, and require 60 total credits for completion. Track 2 is for a B.A. with an Advanced Specialization in Digital Media, Painting, Printmaking, Sculpture, or Intermedia. Track 3 is for a B.A. with a concentration in Graphic Design.

See the department website for more information: www.art.umd.edu

Placement in Courses

With appropriate AP or IB credit and scores, students may receive credit for ARTT100, ARTT110, or both. Contact Department advisors for more information.

Requirements for the Major

The Department of Art offers three tracks to a Bachelor of Arts degree (B.A.). All majors enter the Department in Track 1, the open B.A., and take a required group of six Foundation courses (18 credits). After completion of the Foundation courses, students may continue in Track 1 without portfolio review, or choose to submit a portfolio of work completed in Track 1 courses for admission into Track 2 or Track 3. Portfolio reviews for both specializations will take place during the Spring semester, usually during late March.

- **Track 1: B.A. in Studio Art.** This is an open program with no portfolio admission requirement. This track provides ample space for outside electives, encourages interdisciplinary interaction, and provides double major or double degree possibilities. The Art Education Curriculum works with Track 1. Credit requirements:

36 credits in Studio Art, and 12 credits in supporting courses in Art History and/or Art Theory, for a total of 48 credits.

- **Track 2: B.A. in Studio Art with Advanced Specialization.** This track is restricted to students admitted by competitive portfolio review, and is aimed at students who envision graduate study or professional careers in art. Students accepted into this track will complete, in addition to the requirements for Track 1, a 12 credit advanced specialization in specific media areas, including ARTT481: Advanced Specialization Seminar. Areas of specialization include: Digital Media, Painting, Printmaking, Sculpture, and Intermedia. Credit requirements: 48 credits listed in Track 1 plus 12 credits in Advanced Specializations, for a total of 60 credits.

- **Track 3: B.A. in Studio Art with a concentration in Graphic Design.** This track is restricted to students admitted into the Graphic Design concentration through a competitive portfolio review. This program provides a pre-professional orientation emphasizing interactive design, graphic design theory, and interdisciplinary research. Students accepted into the Graphic Design program must complete a specific sequence of courses at both the 3xx- and 4xx-level. Graphic Design courses are only available to students who have been admitted to the Graphic Design concentration. Credit requirements: 21 credits in Foundation and studio art electives, and 12 credits in supporting courses in Art History and/or Theory (ARTT361 Design Literacy: Decoding Our Visual Culture, a Graphic Design Concentration requirement, satisfies 3 credits of the supporting area for Graphic Design students) for a total of 60 credits.

Students interested in Track 2 may apply after the completion of at least two 3xx-level courses, plus completion or enrollment in ARTT418. Students may re-apply one time.

Students interested in Track 3 must have completed or be enrolled in the required Foundation courses to apply to the specialization. The strict course requirements in Graphic Design make early application to Track 3 optimal. Students may re-apply one time.

Transfer students who have completed courses equivalent to the Foundation and intermediate courses at UMCP may apply immediately to Tracks 2 or 3 if they choose.

These are competitive programs with a limit of approximately 20 new students per year in the combined Art areas, and approximately 20 students per year in Graphic Design. For information about the Portfolio review process for Tracks 2 and 3 please see the Department of Art website.

No course grade below the grade of C- may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Track 1: BA in Studio Art - 48 total credits required to complete major

Foundation Courses: 18 Credits

- ARTT100: Two Dimensional Design Fundamentals
- ARTT110: Elements of Drawing I
- ARTT150: Introduction to Art Theory
- ARTT200: Three Dimensional Art Fundamentals
- ARTT210: Elements of Drawing II
- ARTT255: Introduction to Digital Art and Design Processes

Intermediate Courses: *9 Credits*

Choose three courses total from at least two areas on this list:

- Painting (ARTT320)
- Sculpture (ARTT330, 331, 332, 333)
- Printmaking (ARTT340, 341, 343, 344)
- Digital Media (ARTT370)

Advanced Courses: 9 Credits

- ARTT418: Advanced Drawing Studio
- One 3xx-/4xx-level ARTT elective
- One 4xx-level ARTT or Art Theory elective

Supporting Area: 12 Credits

- ARTH200, ARTH201, plus two 3xx-/4xx-level ARTH or Art Theory electives
- (Department recommends ARTH351: Twentieth Century 1945 to present)

Track 2: B.A. in Studio Art with an Advanced Specialization:
12 credits in addition to 48 credits required in Track 1; 60 total credits required to complete major.

Course Requirements for Areas of Advanced Specialization in Studio Art: Advanced media courses ending in 8 or 9 are repeatable up to 12 credits.

Digital Media:

- ARTT479: Advanced Digital Media Studio (2 repeatable 3 cr. courses) - *6 credits*
- Option: ARTT479 or ARTT353/449 (Photo) or 34x/448 (Printmaking) - courses that emphasize digital processes. (3 cr. of ARTT 498 Directed Studies may be substituted for ARTT479 cr.) - *3 credits*

- ARTT481: Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Painting:

- ARTT428: Advanced Painting Studio (Three repeatable 3 cr. courses) (3 cr. of ARTT498 Directed Studies in Art may be substituted for ARTT428) - *9 credits*
- ARTT481: Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Printmaking:

- Option: ARTT34x or ARTT448 - *3 credits*
- ARTT448: Advanced Printmaking Studio (Two repeatable 3 cr. courses) (3 cr. of 498 Directed Studies may be substituted for 448 credit) - *6 credits*
- ARTT481: Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Sculpture:

- Option: ARTT33x or ARTT418* or ARTT438 - *3 credits*
- ARTT438: Advanced Sculpture Studio (Two repeatable 3cr. Courses) (3 cr. of ARTT498 Directed Studies in Art may be substituted for 438 credit.) - *6 credits*
- ARTT481: Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Intermedia:

- ARTT4xx Advanced Studios (combination of inter-related courses) (3 cr. of ARTT498 Directed Studies in Art may be used for 4xx credit.) - *9 credits*
- ARTT481: Advanced Specialization Seminar. Track 2 students only. Students in Department Honors Program may substitute the Honors Seminar for this course. - *3 credits*

Track 3: B.A. in Studio Art w/ Concentration in Graphic Design
60 total credits required to complete major.

Intermediate and Advanced Graphic Design courses are restricted to students who have been accepted into the Design Concentration by an application process and competitive portfolio review. All Track 3 students must satisfy the following requirements:

Requirements

- Foundation and Supporting Area courses listed in Track 1 BA (see ARTT361 below) - *27 credits*
- ARTT386 or 45x Graphic Design Electives - *6 credits*
- ARTT3xx / 4xx Art Electives - *6 credits*
- Required Graphic Design Area of Concentration Courses - *21 credits*

Graphic Design required courses - 21 credits

- ARTT355: Intermediate Graphic Design Principles
- ARTT356: Graphic Design Processes
- ARTT357: Interactive Graphic Design
- ARTT454: Advanced Graphic Design Principles
- ARTT455: Three-Dimensional Graphic Design
- ARTT458: Graphic Design Portfolio
- ARTT361: Design Literacy: Decoding Visual Culture. Satisfies 3cr. of the Art History or Theory supporting area.

Graphic Design elective courses: Student choice – 6 credits.
Not all courses are offered every semester. Some are offered during Summer and Winter terms.

- ARTT386: Experiential Learning (Graphic Design Internship only)
- ARTT456: Motion Design
- ARTT457: Advanced Interactive Design
- ARTT459: Advanced Graphic Design Studio
- ARTT488: Special Topics in Graphic Design
- ARTT499: Directed Studies in Graphic Design

Other Requirements for the Major

Please go to Department of Art Website for more information: www.art.umd.edu

Certificate

The Department of Art offers no formal Certificate programs.

Advising

The Department has a single advisor, Emily Conover (econover@umd.edu). She makes appointments by email. You can call Undergraduate Administrative Assistant, Kathie Boyle (301-405-7790) if you have questions. Each second-semester sophomore and first-semester senior is required to meet with their advisor.

Students are strongly encouraged to see their advisor in the department annually.

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

A variety of undergraduate research and/or internship experiences are available. Please go to Department of Art Website for more information: www.art.umd.edu

Fieldwork Opportunities

A variety of undergraduate fieldwork and/or internship opportunities are available. Please go to Department of Art website for more information: www.art.umd.edu.

Internships

Students have worked in a variety of internship settings. These have included assisting professionals with public commissions, commercial or cooperative gallery and exhibition duties, and working in professional artists' workshops in the Baltimore and Washington, D.C. metropolitan areas. The Graphic Design concentration maintains a variety of internship connections with the professional design communities from Baltimore to Washington, DC. Additional information is available in the Department of Art office or on the website www.art.umd.edu.

Honors Program

The Departmental Honors Program provides Art majors with opportunities for in-depth study and enrichment in areas of special and creative interest. Students are admitted to this program by competitive portfolio review. To qualify, students must be Art majors with junior or senior status, a major GPA of 3.2, and an overall GPA of 3.0. The program requires a total of 12 credits in Honors course work, and is completed over the student's senior year. Two courses (3 credits each) may be taken at the 3xx- or 4xx-level, and two courses (3 credits each) at the 4xx-level. There is a thesis component in one of the 4xx-level courses and includes a Thesis Exhibition in the Herman Maril Gallery.

Please consult the department website and/or the Honors Director for additional information.

Student Societies and Professional Organizations

The Student Art League is an active student organization that encourages membership and participation for all majors. Art majors participate in many campus-wide organizations.

Scholarships and Financial Assistance

The Department of Art administers eight Creative and Performing Arts Scholarships (CAPAs) that are available to continuing students as well as entering freshman or transfer students. This is a merit-based scholarship that is awarded on a one-year basis and may be renewed. Additional information is available in the main office of the department. The Van Crews Scholarships and Clarvit Scholarships are designated for outstanding Art majors concentrating in Graphic Design. Further details are available on the department website: www.art.umd.edu

Awards and Recognition

Each semester the faculty votes for students to receive 1st, 2nd, and 3rd place cash prizes for the James P. Wharton Award, given at graduation. Students are given the awards based on works exhibited in the Graduating Seniors Exhibition in the Herman Maril Gallery.

When funds are available, the department holds a competition for the John Dorsey Prize for Curatorial Excellence. The winner receives a cash award and funds towards the production of a curated exhibition in the Herman Maril Gallery.

Other awards are given on an intermittent basis, depending on the funding.

For more information, go to the department website: www.art.umd.edu

Art Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

ART HISTORY AND ARCHAEOLOGY (ARTH)

College of Arts and Humanities
1211-B Parren J. Mitchell Art-Sociology Building, 301-405-1479
www.arthistory.umd.edu
tmorse@umd.edu
Chair: M. Gill
Professors: A. Colantuono, M. Gill, J. Hargrove, J. Kuo, S. Mansbach, A. Wheelock
Associate Professors: R. Ater, J. Shannon, Y. Suzuki, A. Volk
Assistant Professors: E. Egan, M. Gensheimer, A. McEwen
Lecturers: B. Bland, A. Georgievska-Shine, L. Martinez, G. Metcalf
Affiliate Professors: F. Kelly, R. Spear
Professors Emeriti: D. Denny (Prof Emeritus), W. Pressly (Prof Emeritus), M. Spiro (Assoc Prof Emerita), M. Venit (Prof Emeritus), J. Withers (Assoc Prof Emerita)

The Major

The goal of the Department is to develop the student's critical understanding of visual culture in both art historical and archaeological contexts. The program provides a diverse selection of courses in the art and archaeology of Africa, the Americas, Asia, and Europe.

The location of the University between Washington and Baltimore gives students the opportunity to use some of the finest museum and archival collections in the world for their coursework and independent research. Curator/professors, exhibitions in the Art Gallery and Stamp Gallery at the University of Maryland, and the extensive use of study collections bring regional and distant museums into the classroom.

Courses offered by this department may be found under the following acronym: ARTH.

Program Objectives

The Department of Art History and Archaeology's B.A. program equips its majors with critical knowledge of art history and visual culture. The program promotes visual literacy in the history of art from around the world and from prehistoric times to the present. It cultivates strong research, written, and critical thinking skills and develops students' abilities to synthesize cultural, historical, political, and social information as it bears upon the visual arts.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the B.A. in Art History, students should have acquired the following abilities:

1. An ability to demonstrate knowledge of a large set of artistic monuments, objects, and performances in their cultural, historical, political, and/or social contexts.

2. An ability to communicate effectively about art in writing, using clear and concise prose to advance logical arguments supported by adequate and appropriately cited research materials.

3. An ability to employ the appropriate technologies for conducting research in the history of art, including print sources and/or electronic information.

4. An ability to recognize the methods and theories used to ask and address significant questions about works of art, and understand the values informing them.

5. An ability to demonstrate skills in visual and critical analysis and sensitivity to diversity in comparing works of art across time, geography, and/or culture.

Academic Programs and Departmental Facilities

The location of the university between Washington and Baltimore gives students the opportunity to use some of the finest museum and archival collections in the world for their course work and independent research. The department encourages students to hold internships at a number of these institutions. Curator/professors, exhibitions in galleries at the University of Maryland, interactive technologies, and the extensive use of study collections complement traditional classroom learning.

The department is in the forefront of exploring digital imaging technologies for art historical and archaeological teaching, research, and publication. The Michelle Smith Collaboratory for Visual Culture, located in the department on the fourth floor of the Art-Sociology Building, is central in creating a nurturing environment for academic research and creative learning. This new space permits ample workspace for meetings, workshops, forums, and the execution of large-scale technical projects.

Admission to the Major

Students must meet either with the undergraduate advisor or Director of Undergraduate Studies for admission to the Major. The advisor and student will complete the departmental portion of the *College of Arts and Humanities and Art History Academic Plan Checklist*. The student must take the form to the College and meet with the ARHU advisor. The ARHU advisor will make the official change in the university records.

Requirements for the Major

Requirements for the major in Art History are as follows:

		Credits
	One from:	3
ARTT100	Two Dimensional Art Fundamentals	
ARTT110	Elements of Drawing I	
	ARTH required courses:	
ARTH2xx	three ARTH courses at the 2xx level	9
	seven ARTH courses at the 3xx or 4xx level	
ARTH3xx or 4xx	Of those seven courses, at least one must be ARTH488 (Colloquium in Art History). Enrollment for ARTH488 is limited to (a) majors with at least 75 total credits and at least 9 credits in ARTH at the 3xx level, or (b) those given permission by the faculty/department.	21
	Supporting Area:	12

A supporting area of four courses outside the department of Art History and Archaeology at the 3xx or 4xx level. Course should cohere around a broad area of study, and must be related to the student's studies in the department. All supporting courses must be approved by an ARTH advisor.

No credit toward the major can be received for ARTH 100 or 355.
No course with a grade lower than "C-" may be used to satisfy major or supporting area requirements.

An overall GPA of 2.0 in the major is required for graduation.

Other Requirements for the Major

In the Department of Art History and Archaeology, 3xx-level and 4xx-level courses are differentiated. 3xx-level courses focus on period or topical surveys and 4xx-level courses highlight content- or theme-based material. Majors should complete the 2xx-level surveys before they enroll in 3xx- or 4xx-level courses. Students are strongly encouraged to take supporting area courses that complement the art history major. No course with a grade lower than “C-" may be used to satisfy major or supporting area requirements.

Requirements for the Minor

The minor in Art History introduces students to a range of art-historical periods, problems, and methodologies and is intended at once to broaden and deepen the student's knowledge of arts and humanities. A total of 18 credits is required.

1. Nine (9) credits of 2xx-level surveys in the history of art are required. Choose any three (3) broad surveys from among the following 3-credit courses:

- ARTH200: Art and Society in Ancient and Medieval Europe and the Mediterranean
- ARTH201: Art and Society in the West from the Renaissance to the Present
- ARTH250: Art and Society in the Ancient American World
- ARTH255: Art and Society in the Modern American World
- ARTH275: Art and Society in Africa
- ARTH290: Art and Society in Asia

2. In addition, nine (9) credits of 3xx or 4xx-level art history courses are required. Choose any three (3) (3xx- or 4xx-level) 3-credit courses in Art History (ARTH prefix).

A total of six (6) credits may be transferred into the minor from other institutions or programs. These transferred credits include those from study-abroad programs. Study-abroad credit requires the prior approval of the Director of Undergraduate Studies.

All courses presented for the minor must be passed with a grade of "C-" or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy minor requirements.

To make an appointment to explore or declare a minor,
go to http://www.arhu.umd.edu/undergraduate/academics/minors

Advising

For advising about the art history major and minor programs, please consult our Undergraduate Advisor or Director of Undergraduate Studies. For updated details regarding ARTH advising go to: http://arthistory.umd.edu/undergraduate-advising

Departmental advising is mandatory for all majors. Once registration begins, students must come in for departmental advising before the department can remove their registration block. Students should check for registration blocks and advising hours.

Students should consult the department's Undergraduate Advisor for general and mandatory advising matters including registration and advising block removal, study abroad questions and museum internships. For specific questions regarding the major and minor programs and requirements, special situations, issues with academic probation, as well as for special permissions, please contact the Director of Undergraduate Studies.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Internships

The location of the University between Washington and Baltimore gives students the opportunity to use some of the finest museums and archival collections in the world for their coursework, independent research and internships. Art History majors are encouraged to supplement their art historical and archaeological studies by applying to internships at local museums and galleries. For more information regarding local museum and gallery internships in the DC-Baltimore region, please consult the departmental website: http://arthistory.umd.edu/internships

ARTH 386: Experiential Learning

Students of junior standing or higher may receive academic credit for unpaid spring or fall museum/gallery internships via ARTH386. This course may count as one of the seven 3xx/4xx-level ARTH courses required for completion of the ARTH major. Prerequisites: permission of department and 60 credit hours completed.

For details outlining the process for securing such credit and for museum internship information, go to: http://arthistory.umd.edu/internships

Students must complete all of the required steps outlined on the website and register for ARTH 386 before the end of the schedule adjustment period for that semester. The department does not give credit for museum and gallery internships that have already been completed.

Honors Program

If you have completed at least 12 credits in Art History and Archaeology courses and if you have an overall GPA of 3.5 or higher (in all course work, not just ARTH courses) you are qualified to work toward departmental honors at graduation. Such honors will be noted on your official transcript. Consult the Director of Undergraduate Studies for details. Among your seven 3xx/4xx-level ARTH courses required for the major, you must take at least one colloquium (ARTH488) and you also must take Methods of Art History (ARTH496). In addition to the regular requirements for the major, you must research and write an Honors Thesis (ARTH499), normally in the year when you will graduate. Before registering for this course you must identify and gain the support of a faculty supervisor. The faculty supervisor must be a regular member of the ARTH department faculty. Adjunct faculty members do not supervise honors theses.

Student Societies and Professional Organizations

The Department of Art History and Archaeology has an active Undergraduate Art History Association (AHA) and is also affiliated with OrgSync. Interested students should contact the Director of Undergraduate Studies or the undergraduate advisor for more information or go to http://www.arthistory.umd.edu/art-history-association-aha and https://www.facebook.com/UmdAHA.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Department of Art History and Archaeology offers four undergraduate awards each year at spring commencement. The Judith K. Reed Scholarship is awarded to an exemplary ARTH major of junior standing. The Judith K. Reed Commencement Award, the George Levitine Award and Frank DiFederico Award are granted to outstanding graduating ARTH seniors.

Asian American Studies Program

Office of Undergraduate Studies
2117 Susquehanna Hall, 301-405-0996
www.aast.umd.edu
aast@umd.edu

Note: The Certificate in Asian American Studies is suspended. Information on the Certificate is for reference only.

The Certificate in Asian American Studies involves students in critical study of the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas.

Requirements for Certificate:
The Certificate in Asian American Studies requires at least 21 credits: 6 credits in core courses (AAST200 and AAST201); 12 credits in elective courses (from among AAST offerings or, with program approval, from among courses offered outside AAST); and a capstone course of 3 credits (AAST378 or AAST388). Students must earn a grade of "C-" or better in any course that counts toward the Certificate in Asian American Studies.

Note: The Certificate in Asian American Studies was suspended beginning fall 2009. The Asian American Studies Program currently offers a 15-credit academic minor; see Chapter 6 for details on the Asian American Studies Minor.

Astronomy (ASTR)

College of Computer, Mathematical & Natural Sciences
1208 Physical Sciences Complex, 301-405-3001
www.astro.umd.edu
astro-ug@astro.umd.edu
Chair: S. Vogel
Director: E. McKenzie
Professors: A. Bolatto, M. C. Miller, L. D. Deming, D. Hamilton, A. Harris, L. Mundy, R. Mushotzky, K. Papadopoulos, C. Reynolds, D. Richardson, J. Sunshine, S. Veilleux
Associate Professors: M. Ricotti
Assistant Professors: S. Gezari
Senior Lecturer: M. Hayes-Gehrke (Prin Lect), A. Peel
Adjunct Professors: E. Dwek, M. Mumma
Adjunct Assistant Professors: S. B. Cenko
Professors Emeriti: M. A'Hearn, J. Earl, J. Harrington, M. Leventhal
Visiting Faculty: D. Neufeld

The Major

The Astronomy Department offers courses leading to a Bachelor of Science in Astronomy as well as a series of courses of general interest to non-majors. Astronomy majors are given a strong undergraduate preparation in Astronomy, Mathematics, and Physics. The degree program is designed to prepare students for positions in government and industry laboratories or for graduate work in Astronomy or related fields. Courses offered by this department may be found under the following acronym: ASTR.

Program Objectives

The Department of Astronomy B.S. program educates majors toward achieving an understanding of modern astronomical concepts, applying physics and mathematics to astrophysical situations, and gaining experience in gathering and reducing data using astronomical instrumentation and computational tools. Completion of this program provides the opportunity for majors to acquire the knowledge and skills necessary for graduate school or employment after graduation.

Program Learning Outcomes

- Identify basic concepts from the many areas of astronomy, including motions in the sky, gravity, electromagnetic radiation, solar system, stars, and galaxies.
- Develop mathematical skills, acquire physics knowledge, and practice applying these skills and knowledge in astrophysical situations.
- Use astronomical telescopes/instruments and reduce astronomical data using modern computational methods.
- Demonstrate advanced level knowledge in several different areas of astronomy.

For further details, see the department's assessment plan:
http://www.astro.umd.edu/academics/astronomyBS.pdf

Academic Programs and Departmental Facilities

The Department of Astronomy is a full partner in the 4.3m Discovery Channel Telescope (DCT) (https://lowell.edu/research/research-facilities/4-3-meter-dct/), one of the largest and most technologically advanced telescopes in the continental U.S. We have joined Caltech and other partners in the Zwicky Transient Facility (http://www.ptf.caltech.edu/ztf), a time-domain survey for studying rare and exotic transient phenomena with first light at Palomar Observatory in 2017. The Department is involved with major space missions, such as NASA's Deep Impact, EPOXI, and Rosetta missions which have explored comets. Additionally, the Department operates a small observatory (http://www.astro.umd.edu/openhouse/) on campus which has four fixed telescopes ranging in aperture from 20" to 7" and six portable 8" telescopes. This facility is used for undergraduate majors' classes and for small-scale research projects, as well as for an Open House Program for the public. The Department operates a modern computer cluster (http://www.astro.umd.edu/rareas/ctc/#ctcfacilities) for computation-intensive science projects, and we have a new visualization laboratory for state-of-the-art simulations and displays of large datasets. Opportunities are available for undergraduates to become involved in research with all of these facilities. Many of our students also conduct research and instrumentation projects with distinguished scientists at the nearby NASA Goddard Space Flight Center and other sites.

Requirements for the Major

Required Basic Astronomy Courses (14 credits):

ASTR120 - Astrophysics I: The Solar System (3 credits)

ASTR121 - Astrophysics II: Stars and Beyond (4 credits)

ASTR310 - Observational Astronomy (4 credits)

ASTR320 - Theoretical Astrophysics (3 credits)

Advanced Astronomy Courses (6 credits):

Any two 400 level Astronomy courses are required:

ASTR406 - Stellar Evolution (3 credits)

ASTR410 - Radio Astronomy Techniques (3 credits)

ASTR415 - Computational Astrophysics (3 credits)

ASTR421 - Galaxies (3 credits)

ASTR422 - Cosmology (3 credits)

ASTR430 -The Solar System (3 credits)

ASTR435 - Exoplanets (3 credits)

ASTR450 - Orbital Dynamics (3 credits)

ASTR480 - High Energy Astrophysics (3 credits)

Optional Astronomy Seminars

ASTR288C - Astronomy Research Techniques (2 credits)

ASTR288M - Current Events in Astronomy Research (1 credit)

ASTR288P - Introduction to Astronomical Programming (1 credit)

Required Introductory Physics Courses (17 credits)

PHYS165 - Introduction to Programming for the Physical Sciences (3 credits)

For students with experience with computer programming this course can be replaced by PHYS474 Computational Physics or ASTR415 Computational Astrophysics. *If students complete ASTR415 for this requirement, it cannot be counted as an advanced astronomy course (400-level course) requirement.*

PHYS171 - Mechanics and Thermal Physics (3 credits)

PHYS174 - Laboratory Introduction (1 credit)

PHYS272 - Fields (3 credits)

PHYS273 - Waves (3 credits)

PHYS275 - Experimental Physics I: Mechanics, Heat and Fields (2 credits)

PHYS276 - Experimental Physics II: Electricity and Magnetism (2 credits)

Also accepted with consent of advisor: PHYS161, 165, 260, 261, 270, 271 (14 credits)

Advanced Physics Courses (13 credits):

PHYS371 - Modern Physics (3 credits)

PHYS373 - Mathematical Methods for Physics II (3 credits)

PHYS401 - Quantum Mechanics I (4 credits)

PHYS404 - Statistical Thermodynamics (3 credits)

Supporting Mathematics/Mathematical Methods Courses (15 credits):

MATH140 - Calculus I (4 credits)

MATH141 - Calculus II (4 credits)

MATH241 - Calculus III (4 credits)

PHYS274 - Mathematical Methods for Physics I (3 credits)

Completion of both MATH246 and either 240 or 461 will be accepted in place of PHYS274.

Total Credits required for the Astronomy Major = 65 credits

Grades in all of the above required courses must be "C-" or better.

Requirements for the Minor

Astronomy

A minor in Astronomy may be earned by completing the following with grades of "C-" or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum "C" (2.0) cumulative grade point average across all courses used to satisfy minor requirements. An appointment must be made to register for the minor before final 30 credits are taken. Please contact Department for complete rules and procedures.

	One from:	**Credits**
ASTR100	Introduction to Astronomy	3
ASTR101	General Astronomy	4
ASTR1--	any other Introductory sequence in Astronomy	
	One from:	
ASTR220	Collisions in Space - The Threat of Asteroid Impact	3
ASTR230	The Science and Fiction of Planetary Systems	3
	Three from:	
ASTR300	Stars and Stellar Systems	3
ASTR305	Astronomy and the Media	3
ASTR315	Astronomy in Practice	4
ASTR330	Solar System Astronomy	3
ASTR340	Origin of the Universe	3
ASTR350	Black Holes	3
ASTR380	Life in the Universe - Astrobiology	3
ASTR498	Special Problems in Astronomy	3
CRSxx	Or a course approved by the department	3

Planetary Sciences

The Departments of Astronomy and Geology jointly sponsor a minor program in Planetary Science. Details about this minor and its course requirements are provided in Chapter 8.

Advising

Further information about the program can be obtained by calling the Department of Astronomy office at 301-405-3001.

Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to

complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

Undergraduate Research Experiences

Undergraduates have many research opportunities both on and off campus. More information is available on the department website under 'Undergraduate Research' (http://www.astro.umd.edu/undergrad/ugresearch.html).

Internships

Many undergraduate students do astronomy research internships at the NASA/Goddard Space Flight Center. See the department website under 'Undergraduate Research' (http://www.astro.umd.edu/undergrad/ugresearch.html).

Honors Program

The Honors Program offers students of exceptional ability and interest in Astronomy opportunities for research participation. Honors students work with a faculty advisor on a research project for which academic credit is earned. Certain graduate courses are open for credit toward the bachelor's degree.(Students are accepted into the Honors Program by the Department's Honors Committee on the basis of grade point average or recommendation of faculty.) Honors candidates enroll in ASTR399, complete a research project, write a thesis and do an oral presentation before a committee. Satisfactory grades lead to graduation With Honors (or High Honors) in Astronomy. Further information about the Honors Program can be obtained by calling the Department of Astronomy office at 301-405-3001.

Student Societies and Professional Organizations

AstroTerps is a student club open to all undergraduates with an interest in astronomy. The club invites guest speakers and coordinates many outreach activities, field trips, and special events.

AGN is a group of astronomy undergraduates, graduate students, and postdoctoral researchers. Their goals include facilitating community among astronomy undergraduates, discussing the challenges that women in science face, and giving graduate students a chance to share their experiences with undergraduates through this mentoring opportunity. See the AGN webpage for details.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

For information about external and university awards which our undergraduate students have won, see the department's Fellowships and Prizes webpage (http://www.astro.umd.edu/undergrad/fellowships.html#PreviousWinners).

Atmospheric and Oceanic Science (AOSC)

College of Computer, Mathematical, & Natural Sciences
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu
Chair: J. Carton
Professors: A. Busalacchi, J. Carton, R. Dickerson, E. Kalnay, Z. Li, X. Liang, F. Miralles-Wilhelm, R. Murtugudde, S. Nigam, R. Pinker, R. Salawitch, N. Zeng, D. Zhang
Associate Professors: K. Ide
Assistant Professors: D. Lampkin (Asst Prof)
Affiliate Professors: E. Berbery (Res Prof, Aff Res Prof)
Affiliate Associate Professors: M. Tzortziou (Asst Res Sci, Affiliate Asst. Rsch Scientist)
Adjunct Professors: E. Berbery, C. Brown, R. Colwell (Dist Univ Prof Emerita, Affiliate Prof), P. Decola (Visit Asst Res Sci, Adjunct Prof), B. Doddridge, M. Evans, R. Higgins, M. King, D. Kirk-Davidoff, D. Kleist (Asst Prof), V. Kousky, I. Laszlo (Adjunct Prof), M. McGill (Visit Sr Res Sci), L. Miller (Adjunct Prof), K. Pickering, A. Thompson, L. Uccellini, H. Van Den Dool, F. Weng (Visit Sr Res Sci), R. Zhang
Adjunct Assistant Professors: N. Nidzieko (Asst Prof, Visit Asst Prof)
Professors Emeriti: F. Baer, R. Ellingson, R. Hudson, E. Rasmusson (Sr Res Sci Emeritus), A. Vernekar

The Major

Fundamental concepts from mathematics, chemistry, physics, and computer science are applied to understand the basic principles that control our weather and climate, from extreme events like tornadoes to the millennial changes of ice ages and the results of human modification of our environment. Coursework in the first two years emphasizes mastery of these fundamentals. Coursework in the last two years provides a comprehensive survey of atmospheric and oceanic science, while specialty courses and guided research allow the student to develop expertise in an area of concentration. The Department has particular strengths in computer modeling and remote sensing of the atmosphere and ocean, atmospheric chemistry, and climate studies. In addition to the Department, nearby research laboratories such as the NOAA National Centers for Environmental Prediction and NASA Goddard Space Flight Center offer the student many research opportunities. Courses offered by this department may be found under the following acronyms: AOSC

Program Objectives

The Atmospheric and Oceanic Science B.S. program seeks to educate majors in the basic principles that control our weather and the interactions between atmosphere and ocean that

regulate Earth's climate. Students will be provided with practical experience as researchers and creators of knowledge, and equipped with the requirements for a full range of careers in Atmospheric and Oceanic Science, as well as for related areas in secondary education, graduate school, industry, and public service.

Academic Programs and Departmental Facilities

Our department hosts an undergraduate major, three undergraduate minors, a professional masters and a full academic graduate program. The overlap between the professional masters program and the undergraduate program allows incoming freshman to earn both a bachelors and a masters degree in five years. We believe that research is an essential part of an undergraduate experience, and require all our majors to complete a senior thesis as part of their education!

We maintain computer labs for the use of our students in addition to the computer facilities provided by the university, with all major operating systems represented. Several of our research groups also have their own compute clusters, and those who need to access still more powerful computing resources can use NASA, NOAA and NCAR machines. The department hosts several large disk arrays for local data storage and general-use compute clusters for student use in classes and on small projects. All are accessible from our laboratories. We are in the process of completing and advance forecasting/data visualization lab for students to prepare forecasts, analyze data, and general classroom use.

We have a state of the art rooftop meteorological laboratory, which currently houses standard meteorological instruments and more than a dozen atmospheric chemistry measurements. This facility also frequently hosts instruments from nearby research laboratories such as NASA and NOAA. A short distance away, our department runs an atmospheric chemistry, precipitation and deposition field site at the Beltsville Agricultural Research Center.

Closely affiliated departments and programs, the Earth System Science Interdisciplinary Center (ESSIC) and the Joint Global Change Research Institute (JGCRI) are in the MSquare development immediately east of the main campus, and numerous world-class federal facilities are a short walk or drive away. The new NOAA Center for Weather and Climate Prediction with 700 NOAA researchers is housed next to ESSIC and JGCRI in the MSquare development just east of US Route 1. NASA's Goddard Space Flight Center is five miles down the road, and the National Institute of Standards and Technology, Naval Research Labs, Environmental Protection Agency, and many more are also located in the Washington, D.C. Metro area. All have hired our graduates and host frequent collaborations with our faculty and students.

Admission to the Major

The major in Atmospheric and Oceanic Science is not a limited enrollment program (LEP), so there are no formal requirements for entry into the major. Successful students generally have a solid background, earning good grades in mathematics, physics and chemistry.

Requirements for the Major

AOSC200*	Weather and Climate	3 credits
AOSC201	Weather and Climate Laboratory	1 credit
AOSC431	Atmospheric Thermodynamics	3 credits
AOSC432	Dynamics of the Atmosphere and Oceans	3 credits
AOSC494	Seminar	1 credit
AOSC493	Senior Research Project I	3 credits
AOSC498	Senior Research Project II	3 credits
AOSC358L	Computing and Data Analysis: Deciphering Climate Change Clues	3 credits
AOSC4XX**	Upper Level Major Electives	6 credits

Four of the following five classes:

AOSC400	Physical Meteorology of the Atmosphere	3 credits
AOSC401	Climate Dynamics and Earth System Science	3 credits
AOSC424	Remote sensing	3 credits
AOSC433	Atmospheric Chemistry and Climate	3 credits
AOSC470	Synoptic Meteorology	3 credits

CHEM135	General Chemistry for Engineers	3 credits
CHEM136	General Chemistry Laboratory for Engineers	1 credit
MATH140	Calculus I	4 credits
MATH141	Calculus II	4 credits
MATH241†	Calculus III	4 credits
MATH246†	Differential Equations	3 credits
PHYS161††	General Physics: Mechanics and Particle Dynamics	3 credits
PHYS174††	Physics Laboratory Introduction	1 credit
PHYS260††	General Physics: Vibration, Waves, Heat, Electricity and Magnetism	3 credits
PHYS 261††	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory)	1 credit
PHYS270††	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3 credits
PHYS271††	General Physics: Electrodynamics, Light, Relativity and Modern Physics Laboratory	1 credit

**Or another AOSC course at the 200-level*
***For a detailed list, see our website for AOSC majors*
†*The sequence for math majors may also be used: MATH340, 341*
††*The sequence for physics majors may also be used: PHYS171, PHYS174, PHYS272, PHYS275, PHYS273*

The program requires that a grade of "C-" or better be obtained in all courses required for the major. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree,

students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy major degree requirements.

Detailed information on the major can be obtained by consulting our major website and making an appointment with an AOSC advisor.

Advising

Advising for Atmospheric and Oceanic Science majors is mandatory every semester. Students who need to make an advising appointment should contact the Director of the undergraduate program in Atmospheric and Oceanic Science (Tim Canty: tcanty@umd.edu).

Undergraduate Research Experiences

Many of our present undergraduate students have sought out and obtained productive internships in the Washington, D.C. area. These experiences (whether at NASA, NOAA, EPA, DOE or other federal or state agencies) are important both to our students' academic careers, as they provide context and generate ideas for independent research projects, and to their professional careers. In light of this importance, we have made an undergraduate senior thesis mandatory for all AOSC majors (see the courses AOSC493 and AOSC498). Our majors have the opportunity and are required to perform research! Non-majors may also participate in undergraduate research through AOSC499 or informally with individual professors and research scientists.

Internships

Internships are an integral part of our program. All AOSC majors must complete and defend a full year research project during their senior year. Many opportunities are available at nearby research facilities such as NASA and NOAA.

Honors Program

Each year, the AOSC Honors Program Committee reviews the academic records of AOSC majors. Students with a minimum 3.00 overall GPA and a minimum 3.30 major GPA will be added to the AOSC Honors List. For students on the AOSC Honors list certain graduate courses are open. To receive a citation of "with honors in atmospheric and oceanic science" the student must:

- Have earned a 3.00 or higher overall GPA and a 3.30 or higher GPA for all AOSC major required courses at graduation time
- Pass two approved AOSC graduate level classes with a grade of "B-" or better.
- Pass an Honors Oral Examination in his or her senior year.

To receive a citation of "with high honors in atmospheric and oceanic science" he or she must complete the requirements for honors and receive a high pass for the thesis.

Student Societies and Professional Organizations

The undergraduate program features an active student chapter of the American Meteorological Society.

Scholarships and Financial Assistance

The department maintains awards for highly qualified undergraduate students. Please contact the department for details.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

BEHAVIORAL AND COMMUNITY HEALTH (HLTH)

School of Public Health
2387 School of Public Health Building, 301-405-2463
www.bch.umd.edu
bmonis@umd.edu
Chair: B. Curbow
Professors: K. Beck, B. Boekeloo, P. Clark (Res Prof), R. Feldman, R. Gold, M. Wang
Associate Professors: A. Arria (Assoc Prof), D. Borzekowski (Res Assoc Prof, Res Prof), S. Desmond, K. Green, C. Holt, D. Howard, R. Sawyer, F. Zanjani (Assoc Prof)
Assistant Professors: J. Butler, C. Fryer, M. Garza
Instructors: A. Anderson-Sawyer, J. Hodgson, S. La Touche-Howard (Lecturer), M. Reynolds, K. Sharp, T. Zeeger
Professors Emeriti: J. Greenberg

The Major

Students graduate with a Bachelor of Science degree in Community Health which prepares students for entry-level health education positions in a variety of community health settings: worksite health promotion, research and development, hospitals, and health agencies. Courses offered by this department may be found under the following acronym: HLTH.

Program Objectives

The Department of Behavioral and Community Health promotes the development of behavioral and community health educators who understand the science, theory, and practice of public health and can apply this knowledge toward the enhancement of population health status.

Program Learning Outcomes

As a result of the undergraduate program in community health, students will be able to:

1. Identify individual and community level needs for health promotion and disease prevention.
2. Identify principles of community health that are needed for the development of effective health promotion and disease prevention strategies.
3. Apply statistics and research methods to accurately describe the distribution and examine the determinants of population health.
4. Apply statistics and research methods to community health program evaluations.
5. Describe how to plan, implement and administer short and long term community health interventions.
6. Communicate and disseminate the results of community health program evaluations.
7. Describe how to advocate for effective community health initiatives at the local, state and federal levels.
8. Identify strategies that effectively incorporate cultural competence within health promotion and community health initiatives.
9. Demonstrate competency in planning, preparing, and delivering effective community health presentations.

Requirements for the Major

In addition to the University's general education requirements, students must fulfill four other general sets of requirements: General Electives, Supportive Requirements, Health Electives, and Professional Preparation. HLTH491, the Community Health Internship, is completed during the student's final semester and after all other course work has been successfully completed.

		Credits
	Community Health Major	**120**
	Supportive Requirements	**21**
HLTH130	Introduction to Public & Community Health	3
HLTH140	Personal and Community Health	3
HLTH230	Introduction to Health Behavior	3
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI201	Anatomy and Physiology I	4
BSCI202	Anatomy and Physiology II	4
	Health Electives	**18**
HLTH106	Drug Use and Abuse	
HLTH285	Controlling Stress and Tension	
HLTH371	Communicating Health and Safety	
HLTH377	Human Sexuality	
HLTH38x	Peer Education	
HLTH430	Health Education in the Workplace	

HLTH437	Consumer Behavior	
HLTH460	Minority Health(summer only)	
HLTH471	Women's Health	
HLTH476	Death Education	
HLTH498T	Medical Terminology (Summer & Winter)	
KNES360	Physiology of Exercise	
NFSC100	Elements of Nutrition	
SPHL		
	Professional Preparation	**30**
HLTH200	Introduction to Research in Community Health	3
HLTH300	Introduction to Biostatistics	3
HLTH301	Introduction to Epidemiology	3
HLTH391	Principles of Community Health I	3
HLTH420	Methods and Materials in Health	3
HLTH490	Principles of Community Health II	3
HLTH491	Community Health Internship	12

Advising

Advising is not mandatory, but it is recommended that students periodically schedule an appointment via departmental website to appropriately track their progress in the major. The Community Health major has two advisors:

1. Jennifer Hodgson: jhodgson@umd.edu, 301-405-2523
2. Dr. Nancy Smith: nsmith10@umd.edu, 301-405-9146

Internships

The final semester of the program is dedicated to a full-time, 16-week internship that the student will have identified in the previous semester's required course HLTH490. The internship coordinator is Anne Anderson-Sawyer, MA, aasawyer@umd.edu.

Honors Program

The Department's Honors program began in Fall 2015. Interested students should check the departmental web site or contact Dr. Kerry Green for details.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

DBCH Undergraduate Award Descriptions

The Department of Behavioral and Community Health has evolved significantly over the past few years, and is currently comprised of faculty, staff and hundreds of students who share in a passion to improve health outcomes of individuals and communities. Each year, our Department recognizes some exceptional students by honoring them with awards in recognition of their achievements. A listing of all Behavioral and Community Health sponsored awards follows.

Please note that students may apply for only one award.

Sharon M. Desmond Community Service Award

This award honors Dr. Sharon Desmond's more than 20-year involvement and commitment to improving health within the local community. Serving as a professor within the Department of Behavioral and Community Health since 1989, she teaches about public health from a social justice perspective, addressing health disparities that result from racism and lack of access to care. Dr. Desmond has worked diligently with communities surrounding the University to empower them through health education. In 1999, she was instrumental in founding a health partnership between the city of Seat Pleasant, MD and the university. Since its birth, she has served as secretary, chairperson, and co-chairperson of the Seat Pleasant-University of Maryland Health Partnership (SP-UMHP) and has been actively involved in all partnership programs and activities.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who has demonstrated dedication to his or her community in a health-related capacity. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has regularly participated in community service activities. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative about why you deserve this award, to Beverly Monis at bmonis@umd.edu by February 1st. The subject line of your email should read, "Desmond Community Service Award."

Robin G. Sawyer Health Teaching/Communication Award

This award honors Dr. Robin Sawyer's more than 25-year commitment to a high standard of teaching excellence and health communication. Dr. Sawyer has received numerous awards for his exciting and effective classroom teaching methods, including the most prestigious University of Maryland Regent's Award for Teaching Excellence, which identifies the most outstanding teacher among 5,000 faculty in the University of Maryland System. His unwavering commitment to teaching has led to over 450 presentations at schools, colleges, and universities throughout the United States, and his innovative approach to education has made his Human Sexuality course

one of the most popular classes on our campus. Dr. Sawyer has also written and produced 5 sexuality films that have garnered 14 national and international film awards. Through his Methods and Materials in Health course, Dr. Sawyer continues to teach our majors how to become effective communicators of health information.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who demonstrates promise and involvement in public/community health presentations and teaching. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has effectively taught or presented on a health-related topic. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative of why you deserve this award, to Beverly Monis at bmonis@umd.edu by February 1st. The subject line of your email should read, "Sawyer Health Teaching/Communication Award."

Beck-Feldman Public Health Research Award

This award honors Drs. Kenneth Beck and Robert Feldman's more than 30-year commitment to public health research. Both serve as full professors within the Department of Behavioral and Community Health. Dr. Beck has worked with numerous federal, state, and local agencies to research issues surrounding injury prevention, traffic safety, graduated licensing and risk-taking behaviors. He has focused specifically on the effectiveness of breath alcohol ignition locks at preventing impaired driving, and the effects of parental monitoring on teen alcohol involvement. Dr. Feldman's major areas of research have focused on investigating worksite smoking cessation among government workers in Costa Rica and Latino immigrant construction workers in Maryland. He has also examined the effectiveness of interventions to encourage healthier eating among low income women in the Women, Infant and Children (WIC) program and infant nutrition programs for Latina mothers.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who has a demonstrated involvement in health research projects. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has had some involvement in research. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative of why you deserve this award, to Beverly Monis at bmonis@umd.edu by February 1st. The subject line of your email should read, "Beck-Feldman Public Health Research Award."

David Hyde Award

This award honors Dr. David Hyde's more than 20 year involvement with the Department of Behavioral and Community Health. As the former Undergraduate Program Director, Dr. Hyde advised literally hundreds of students, assisting them in reaching their academic, professional, and personal goals. His open door policy, personable demeanor, and realistic approach to problem solving made him popular among Community Health students. Dr. Hyde also taught courses in stress management and was passionate about helping students cope with and control stress in their academic and personal lives. Retiring in 2010, Dr. Hyde has had the opportunity to pursue his long time interest in photography.

Each spring, the Department of Behavioral and Community Health presents this award to an undergraduate who has demonstrated strength in the face of adversity. The award will be given to a student with a cumulative GPA of 3.0 or higher, who has completed at least 2 semesters in the Community Health major, and who has experienced adversity during his or her undergraduate career. To apply, please email your full name and university ID, as well as a 1-2 page (maximum) narrative of why you deserve this award, to Beverly Monis at bmonis@umd.edu by February 1st. The subject line of your email should read, "David Hyde Award."

Doris Sands Award

This award honors Dr. Doris Sands, a renowned sexuality educator who was recognized for her tremendous teaching skills and ability to reach thousands of students during her time at the University of Maryland (1964-1986). Dr. Sands began her career as a school nurse and happened to identify and diagnose a serious illness in a young high school student. This early intervention saved the young man's life, and many years later, in honor of this action, the grateful man set up a scholarship in the name of Dr. Sands. Throughout her teaching career here at Maryland, Dr. Sands was well known for her direct manner and fearlessness regarding education around human sexuality. She was a trailblazer in this regard, and helped to normalize issues of sexual health in her immensely popular Human Sexuality course.

Each spring, the Department of Behavioral and Community Health's Undergraduate Program Committee selects (no application) a student to receive this award based on strong motivation and promise in the field.

FISCHELL DEPARTMENT OF BIOENGINEERING (BIOE)

A. James Clark School of Engineering
2330 Jeong H. Kim Engineering Building, 301-405-8268
www.bioe.umd.edu
bioe-undergrad@umd.edu
Chair: J. Fisher (Prof; Chair)
Director: J. Aranda-Espinoza (Assoc Prof; Assoc Chair; Director, Graduate Program), W. Bentley (Prof; Director, Robert E. Fischell Institute for Biomedical Devices), I. White (Assoc Prof; Assoc Chair; Director, Undergraduate Program)
Professors: W. Bentley, J. Fisher, P. Kofinas, G. Payne, B. Shapiro, Y. Tao
Associate Professors: J. Aranda-Espinoza, Y. Chen, E. Eisenstein, K. Herold, C. Jewell, H. Montas, S. Muro, I. White
Assistant Professors: S. Jay, S. Matysiak, G. Scarcelli, K. Stroka
Lecturers: A. Jones, L. Ma
Professors Emeriti: A. Johnson

The Major

Bioengineering is a field rooted in physics, chemistry, mathematics, and the life sciences. These areas are applied in quantitative and integrative ways to approach problems in the biological

systems, medical research, and clinical practice. The objective is to advance fundamental concepts, create knowledge from the molecular to organ to system levels, and develop innovative processes for the prevention, diagnosis, and treatment of disease. In short, bioengineering seeks to improve the health and life of humankind on many levels.

Bioengineers specialize in those products and processes made from, used with, or applied to biological organisms. In addition to engineering science and design, bioengineers study cell biology, physiology, bioinformatics, bioimaging, and biomechanics. The synthesis of engineering and biology gives bioengineers unique capabilities in our modern world.

For more information about the Bioengineering major, please visit www.bioe.umd.edu/undergraduate.

The Bachelor of Science degree in Bioengineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 415 North Charles Street, Baltimore, MD 21201, telephone: (410) 347-7700.

Program Objectives

The undergraduate program in the Fischell Department of Bioengineering provides students with a broad and fundamental education relating engineering with the biological sciences. The program has focuses in biomedical devices, human health, biotechnology, and ecosystems. These focuses all contain components of fundamental sciences, design, and communications skills. The students' educational achievements all contribute to enabling a wide range of career paths after graduation.

Our graduates are grounded in fundamentals that will serve them throughout their professional careers. They will have an understanding of human behavior, societal needs and forces, and the dynamics of human efforts and their effects on human health and that of our environment. With these underpinnings and abilities, we have defined several Program Educational Objectives we expect our graduates to attain in 3-5 years after graduation:

1. Prepare our graduates for continuing their education and for gaining employment in a bioengineering or related profession;
2. Instill in our graduates a desire to participate in lifelong learning activities that will further their careers and their impact on society;
3. Encourage our graduates to serve their profession and community.

Program Learning Outcomes

Maryland bioengineers gain a broad-based education in which engineering approaches are used to understand and improve living systems and their environments. We educate students to excel in the field of bioengineering and carry out research, development, and commercialization of bioscience systems and tools that will improve the lives of people throughout the world. The specific Student Outcomes detailed by the Bioengineering Program are detailed below.

a. An ability to apply knowledge of mathematics, science, and engineering.
b. An ability to design and conduct experiments, as well as to analyze and interpret data.
c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, formulate, and solve engineering problems.
f. An understanding of professional and ethical responsibility.
g. An ability to communicate effectively.
h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
i. A recognition of the need for, and an ability to engage in lifelong learning.
j. A knowledge of contemporary issues.
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Additional Bioengineering Outcomes:

1. Applying principles of engineering, biology, human physiology, chemistry, calculus-based physics, mathematics (through differential equations), and statistics.
2. Solving bio/biomedical engineering problems, including those associated with the interaction between living and non-living systems.
3. Analyzing, modeling, designing and realizing bio/biomedical engineering devices, systems, components, or processes.
4. Making measurements on and interpreting data from living systems.

Admission to the Major

Students who wish to study at the A. James Clark School of Engineering apply for admission to the University of Maryland; there is no separate application for engineering. When filling out the university application, you may choose bioengineering as your intended major. You may also apply as an undecided engineering major.

All Bioengineering majors must meet admission, progress, and retention standards of the A. James Clark School of Engineering.

Please note: If you are applying to Bioengineering as a transfer student (whether you are changing majors within the Clark School, transferring from another major within UMD, or transferring from an outside institution), then you must complete BIOE120 with a "B-" or better before you will be admitted into the department. If you wish to enroll, please send an e-mail with your UID to bioe-undergrad@umd.edu. You will be will be notified by e-mail when permission has been granted.

Requirements for the Major

Following is the list of the course requirements for the Bioengineering Undergraduate Program. Each student following the course template should be able to graduate in four years. Each student will meet with his/her Faculty Advisor every semester to plan the schedule of courses for the subsequent semester. Some of the students in the bioengineering program may elect to pursue professional degrees such as Medical, Dental, Law, etc., thus they may need certain courses that those professional schools require and should discuss their plans with their Faculty Advisor. Some of these courses may count as electives towards the major. Students interested in health professions may also view the requirements at www.prehealth.umd.edu.

Year 1
ENES100 - Introduction to Engineering Design
MATH140 - Calculus I
CHEM135 - Chemistry for Engineers
CHEM136 - Chemistry for Engineers Laboratory
BIOE120 - Biology for Engineers
BIOE121 - Biology for Engineers Laboratory
ENES102 - Mechanics I
MATH141 - Calculus II
PHYS161 - General Physics I
ENGL101 - Introduction to Writing
General Education Requirement I

Year 2
CHEM231 - Organic Chemistry I
CHEM232 - Organic Chemistry I, Lab
MATH241 - Calculus III
BIOE241 - Biocomputational Methods
PHYS260 - General Physics II
PHYS261 - General Physics II, Lab
General Education Requirement II
MATH246 - Differential Equations
BIOE232 - Thermodynamics
BIOE371 - Linear Systems and ODEs for Bioengineering Applications
Biological Science Elective I (BSCI 2xx)
General Education Requirement III
BIOE221 - Intro to the Bioengineering Major

Year 3
BIOE331 - Biofluids
BIOE372 - Biostatistics for Experimental Design and Data Analysis
BSCI330 - Cell Biology and Physiology
BIOE Foundational I
BIOE Elective I
BIOE340 - Modeling Physiological Systems and Laboratory

BIOE457 - Biomedical Electronics & Instrumentation
BIOE Foundational II
BIOE Elective II
General Education Requirement IV

Year 4
BIOE485 - Capstone I
BIOE Elective III
Breadth Elective
General Education Requirement V
General Education Requirement VI
ENGL393 - Technical Writing
BIOE486 - Capstone II
BIOE Elective IV spring
Biological Science Elective II
General Education Requirement VII*
Oral Communications Requirement
*see http://bioe.umd.edu/undergraduate/electives for details on courses approved for BIOE Foundational courses and for BIOE, Biological Science, and Breadth electives
*Students are advised to take advantage of Gen Ed courses that double-count for more than one distributive studies requirement

**Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

Advising

The Fischell Department of Bioengineering is committed to student advising and aims to provide comprehensive curricular support to all of its students towards their academic success. Students will find that at various points during their academic careers, they may need a certain kind of guidance. Students may always begin by addressing their questions to bioe-undergrad@umd.edu, and we will point you in the right direction. Generally, advising is handled by one or a combination of the following: faculty advisor, departmental advisor, and/or college advisor.

Faculty Advising

All bioengineering majors are assigned to a faculty advisor. Students are required to meet with their faculty advisors at least once per semester. For currently enrolled majors, the mandatory advising period occurs in the weeks prior to registration for the next semester. The advising meeting with the faculty member generally covers the following: course selection for upcoming semester, four-year planning, and career goals. Students should prepare for every advising meeting by completing and updating the BIOE Advising Worksheet.

Freshmen will be assigned to faculty advisors and notified during their first semesters. All other students may contact bioe-undergrad@umd.edu if they are not sure who their advisor is. For faculty contact information, please see the faculty list (http://www.bioe.umd.edu/faculty).

Departmental Advising

Bioengineering majors and prospective transfer students may also need to meet with a departmental (staff) advisor. Some examples of departmental advising include: Benchmarks (academic progress), planning for study abroad, C.A.R.E (academic probation), double-major/double-degree planning, graduation audit (seniors), and additional help with four-year planning.

For departmental advising, please send an email including your name, UID, and general question to bioe-undergrad@umd.edu. All students seeking advising should read and make sure that they understand the policies and requirements stated in the BIOE Undergraduate Handbook (http://www.bioe.umd.edu/undergraduate/advising/references).

College Advising

The Clark School of Engineering's Office of Undergraduate Advising and Academic Support (UA&AS) (http://www.eng.umd.edu/advising) also provides a broad range of services and support for engineering students. Some policies are the oversight of the College, so your faculty or departmental advisor may at times refer you to a Clark School advisor. For example, transfer admission/transfer credit, 45-credit benchmark review, and permission to enroll at another institution are handled by the College.

Undergraduate Research Experiences

The Bioengineering Department offers a two-year research based **Bioengineering Undergraduate Honors program**. Interested students should apply to the honors program in the spring of their sophomore year. Those accepted into the program will begin research in their junior year. For more information please see: http://www.bioe.umd.edu/undergraduate/honors

The Maryland Center for Undergraduate Research also assists students in finding on and off campus research opportunities www.ugresearch.umd.edu.

Honors Program

The Fischell Department of Bioengineering Undergraduate Honors Program is a research-oriented, thesis-based enrichment experience that serves to augment the curriculum by providing practical, hands-on learning opportunities. The primary goal of the Honors program is to develop BIOE graduates who will be among the most competitive applicants for graduate and medical school programs, as well as industry jobs. Toward this end, the program provides exceptional undergraduate students with training in academic and professional pursuits while offering a formal mechanism to be recognized for scholarly achievements.

For more information, including program admission and completion requirements, see http://bioe.umd.edu/undergraduate/honors

Student Societies and Professional Organizations

BMES-UMD is the University of Maryland, College Park chapter of the Biomedical Engineering Society (BMES). BMES-UMD's mission is to unite and promote the future of the biomedical engineering profession; and to offer rising biomedical engineers the chance to establish leadership, publish their work, and participate in a wide range of activities that will enhance their careers. For more information, visit umdbmes.weebly.com

Alpha Eta Mu Beta (AEMB) is the National Biomedical Engineering Honor Society, and the University of Maryland Fischell Department of Bioengineering established its chapter in spring 2015.

Scholarships and Financial Assistance

The University and the A. James Clark School of Engineering offer a range of financial support to talented undergraduate students enrolled at the School. Offerings include the A. James Clark Endowed Scholarship fund and the Benjamin T. Rome Scholarship. Our program is competitive, with awards made on the basis of merit, financial need, and other factors. For more information on a variety of scholarships, please visit www.ursp.umd.edu

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, please visit www.financialaid.umd.edu

We also have several departmental annual awards and scholarships for which students may apply and be selected based on their scholastic achievements, service to the department and the profession. These award are open to juniors and seniors in the program. Information on these annual awards and scholarship may be obtained from the faculty advisors in the department.

Awards and Recognition

Fischell Dept of Bioengineering Outstanding Junior Award

Fischell Dept of Bioengineering Outstanding Senior Award

Fischell Dept of Bioengineering Outstanding Research Award

Fischell Dept of Bioengineering Outstanding Leadership Award

Fischell Dept of Bioengineering Outstanding Citizen Award

Seymour & Faye Wolfe Scholarship: Bioengineering student

Jeffrey C. and Sandra W. Huskamp Scholarship: Bioengineering student

Biological Sciences Program (BSCI)

College of Computer, Mathematical and Natural Sciences
1322 Symons Hall, 301-405-6892
bsci.umd.edu
estaylor@umd.edu

The Major

The Biological Sciences major is jointly offered by the Departments of Biology, Cell Biology & Molecular Genetics, and Entomology in the College of Computer, Mathematical, and Natural Sciences. The central Biological Sciences Program office is in 1322 Symons Hall is staffed by:

Dr. Joelle Presson, Assistant Dean. jpresson@umd.edu
Dr. Francisca Saavedra, Assistant Director. saavedra@umd.edu
Ms. Elaine Shaw-Taylor estaylor@umd.edu

Departmental contacts for Biological Sciences are:
Dr. Reid Compton, Undergraduate Director Biology. compton@umd.edu
Dr. Dave Straney, Undergraduate Director Cell Biology & Molecule Genetics. straney@umd.edu
Dr. Brett Kent, Undergraduate Director Entomology. kent@umd.edu

All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. In addition, students must complete an Advanced Program within one of the following specialization areas:

- Cell Biology & Genetics (CEBG)
- Ecology & Evolution (ECEV)
- General Biology (GENB)
- Microbiology (MICB)
- Physiology & Neurobiology (PHNB)
- Individualized Studies (BIVS)

A complete list of specialization area requirements can be found on our website, bsci.umd.edu. Note that the Individualized Studies specialization (BIVS) requires permission of the Assistant Dean of Undergraduate Academic Programs, and involves an approved proposal to do coursework in the College and in other disciplines. Further questions about Biological Sciences can be directed to the Undergraduate Academic Program Office at 301-405-6892.

Biological Sciences at the University of Maryland at Shady Grove

The Biological Sciences Program at the University of Maryland offers a degree program at Universities at Shady Grove. The Biological Sciences Program at Shady Grove offers the Advanced Program courses normally taken in the junior and senior years. More information is available at: bsci.umd.edu/shady-grove/.

Program Learning Outcomes

1. Students should have mastered the critical knowledge at each level in the curriculum that is necessary to move on to the next level in the curriculum.
2. Students should demonstrate an ability to use and apply quantitative methods, especially: interpretation of graphical or tabular data; expression of physical, chemical, or biological process in mathematical form; solving equations to determine the value of physical, chemical, or biological variables.
3. Students at the lower level should demonstrate an ability to carry out key experimental techniques used in the chemical and life sciences disciplines.
4. Students at the lower level should have a basic understanding of how to express questions as a hypothesis, how to design a test of a hypothesis, and how to gather and analyze simple data.
5. Students at the upper level should be able to integrate and apply a relevant body of basic knowledge to the evaluation of existing scientific studies and to design studies to test specific hypotheses that includes design elements typically found in a specific field of the chemical and life sciences.
6. Students should effectively communicate in writing the processes of science and the results of scientific inquiry.

Academic Programs and Departmental Facilities

In addition to offering high quality undergraduate specializations in the Biological Sciences, the BSCI program participates in the collaborative program in secondary teaching, Terrapin Teachers, terrapinteachers.umd.edu. This program allows students to develop their expertise at communicating science to diverse audiences and provides a path toward certification to teach secondary school science or math.

Admission to the Major

The Biological Sciences major is a Limited Enrollment Program. Please see the admission requirements and procedures at: lep.umd.edu.

Placement in Courses

Enrollment in BSCI170&171 and BSCI160&161 requires placement into MATH130, 120 or 140 (i.e. completion of MATH113 or 115).

Students who earn Advanced Placement or International Baccalaureate Placement which grants equivalency for BSCI170&171 and/or BSCI161&161 are encouraged not to repeat these courses at UMD, but can continue to courses for which BSCI170&171 and/or 160&161 satisfy prerequisite requirements.

Requirements for the Major

		Credits
	General Education Program Requirements	
	Basic Program in Biological Sciences	**15**
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
BSCI207	Principles of Biology III	3
BSCI222	Principles of Genetics	4
	Supporting courses	**30-32**
MATH130 **or**	Calculus I	3
MATH140		4
MATH131 **or**	Calculus II	3
MATH141		4
CHEM131/132	Fundamentals of General Chemistry /Lab	4
CHEM231/232	Organic Chemistry I / Lab	4
CHEM241/242	Organic Chemistry II / Lab	4
CHEM271/272	Gen Chem & Energetics / Gen Bioanalytical Lab	4
PHYS131 **or**	Fundamentals of Physics I, **or**	4
PHYS141	Principles of Physics	4
PHYS132 **or**	Fundamentals of Physics II, **or**	4
PHYS142	Principles of Physics	4
	Advanced Program in Specialization Area See website for details of specialization Area requirements.	**27**
ELECT	**Electives**	**15-18**

Advising

Information on BSCI advising can be found at: http://bsci.umd.edu/advising/.

All freshmen and new transfer students will be assigned an advisor from the College of Computer, Mathematical, and Natural Sciences Student Services advising staff. Students will be assigned to a departmental faculty advisor once a basic sequence of courses has been successfully completed. The departmental faculty advisors are coordinated by the following

persons for the indicated specialization areas. These coordinating advising offices can be contacted for making appointments with an advisor or for any other information regarding that specialization area.

Straney	1225 H.J. Patterson	301-405-2766	CEBG,GENB,MICB
Compton	2227 Biology-Psychology	301-405-6904	ECEV, PHNB
Kent	3142 Plant Sciences	301-405-3911	GENB
Presson	1322 Symons Hall	301-405-6892	BIVS, Secondary Education Terrapin Teachers, Science in the Evening

Undergraduate Research Experiences

Laboratory research, fieldwork, and internships are valuable co-curricular experiences which add value to a student's academic experience in CMNS disciplines. We encourage students to pursue one or more of these experiences during their undergraduate studies. Please see the College website (http://cmns.umd.edu/undergraduate/research-internships) for more information about experiential learning for CMNS undergraduates.

Internships

See http://cmns.umd.edu/undergraduate/research-internships.

Honors Program

Outstanding students are encouraged to apply to departmental Honors Programs. Through the Honors Programs students will become actively involved in the ongoing scientific research at the university. Information about these honors programs may be obtained from the Undergraduate Academic Programs Office, 1322 Symons Hall, 301-405-6892.

Student Societies and Professional Organizations

Biological Sciences student representatives serve on the CMNS Student Advisory Board. For more information see http://cmns.umd.edu/sab.

Biology (BIOL)

College of Computer, Mathematical, & Natural Sciences
2227 Biology-Psychology Building, 301.405.6904
http://biology.umd.edu/
bioundergrad@umd.edu
Chair: W. Fagan (Prof)

Professors: G. Borgia, C. Carr, M. Colombini, W. Jeffery, P. Kanold, T. Kocher, K. Lips, R. Payne, E. Quinlan, M. Rankin, M. Reaka, J. Simon, S. Sukharev, G. Wilkinson
Associate Professors: I. Ades, R. Araneda, A. Bely, D. Butts, K. Carleton, M. Cummings, E. Haag, C. Machado, J. Singer, N. Swenson
Assistant Professors: H. Fisher, Q. Gaudry, P. Johnson, S. Juntti, C. Speer
Senior Lecturer: R. Compton, R. Infantino, J. Opoku-Edusei, B. Parent
Lecturers: H. Bierman, C. Fox, S. Lombardi, K. Paczolt, D. Sandstrom, H. Woodham
Professors Emeriti: G. Anastos, A. Cohen, D. Gill, W. Higgins (Assoc. Prof. Emeritus), R. Highton, D. Inouye, S. Pierce, A. Popper

The Major

The Department of Biology is committed to an integrative understanding of organisms ranging from processes occurring at the level of molecules to human impacts on global ecological scales. This integrative approach is evident in the variety of courses we offer. Courses offered by Biology focus on the function of molecules or cells (e.g., Membrane Biophysics, Mammalian Histology, Neurophysiology), on the integration of organ systems (e.g., Vertebrate Form and Function, Mammalian Physiology), on the interaction of organisms with each other and their environment (e.g. Animal Behavior, Plant Ecology, Population Ecology), on evolutionary process and diversification (e.g., Principles of Evolution), and/or on the relationship between humans and their environment (e.g., Biology of Conservation and Extinction).

In addition to a strong foundation in basic biology, our faculty provide students interested in medical careers with courses that discuss medical applications (Biology of Cancer, Diseases of the Nervous System) and evolutionary considerations. Our program has particular strengths in neuroscience, evolutionary developmental biology, and ecology. Our diverse faculty and our linkages with other institutions, such as the National Institutes of Health and the Smithsonian Institution, provide students with a wealth of research opportunities to prepare them for careers in medicine, conservation biology, public policy, education, and more.

Courses offered by this department may be found under the following acronym(s): BSCI, BIOL, CONS, NACS, and BISI.

Program Learning Outcomes

- Students will master the critical knowledge in biology relevant to the next stage in their career.
- Students will demonstrate an ability to use and apply appropriate quantitative methods in the biological sciences.
- Students will be able to critically evaluate and integrate scientific findings in the biological sciences and apply this understanding to areas of professional and public interest.
- Students will be able to effectively communicate though speaking and writing the processes of science and the results of scientific inquiry.
- Students will master experimental design and laboratory skills relevant to the next stage in their career.

Admission to the Major

The Biology Department offers undergraduate courses in the Biological Sciences Program. Biological Sciences is a limited-enrollment program. Specific information about admission requirements for the major can be found at the following link: http://www.lep.umd.edu/cmns-lep.pdf.

Requirements for the Major

See Biological Sciences Program elsewhere in this chapter, or contact the Department of Biology Undergraduate Office.

Other Requirements for the Major

Students receiving a degree in the Biological Sciences from the University of Maryland must earn at least 120 credits with a cumulative minimum GPA of 2.000 in all courses being counted toward the degree as well as in all courses associated with the major. Additionally, all Biological Sciences major courses must have a grade of "C-" or better.

A list of required and optional courses for both the Physiology and Neurobiology and for the Ecology and Evolution specializations, as well as model four-year plans to graduation, can be found at the following link: http://bsci.umd.edu/major-requirements.

Advising

Students are assigned an academic advisor on the basis of their area of specialization. The Department of Biology faculty coordinate and advise students who specialize in Physiology and Neurobiology (PHNB), Ecology and Evolution (ECEV), and the Environmental Science and Policy-Biodiversity & Conservation Biology concentration (ENSP-BIOD). Contact the Department of Biology Undergraduate Office, 301-405-6904, for information about advising or to schedule an appointment. For advising in other Biological Sciences Specialization areas, see the Biological Sciences Program listing in this catalog.

Undergraduate Research Experiences

The Biology Department offers a wealth of undergraduate research opportunities. Students doing undergraduate research with a Biology Department faculty member serving as advisor or co-advisor may sign up for credit under BSCI399, BSCI399L, or BSCI399H or may do research on a volunteer basis. More general information on research opportunities in the Biological Sciences may be found at: http://cmns.umd.edu/undergraduate/research-internships.

Honors Program

The Department of Biology Honors Program offers highly motivated and academically qualified students the opportunity to work closely with a faculty mentor on an original, independent,

research project. Students are required to participate in the program for at least three semesters and need not have been previously admitted to the Honors College to participate. Contact the Biology Undergraduate Office (301-405-6904) for more information.

CELL BIOLOGY AND MOLECULAR GENETICS (CEBG)

College of Computer, Mathematical, & Natural Sciences
1109 Microbiology Building, 301-405-5435
www.cbmg.umd.edu
Chair: J. Dinman (Chair)
Director: D. Straney (Assoc. Prof)
Professors: N. Andrews, C. Chang, T. Cooke, J. DeStefano, C. Delwiche, N. El-Sayed, J. Feijo, T. Fuerst (Prof & Dir IBBR), S. Hannenhalli (CBCB), S. Hutcheson, Z. Liu, R. Mariuzza (IBBR), K. McIver, D. Mosser, J. Moult (IBBR), D. Nuss (IBBR), A. Simon, W. Song, D. Stein, H. Sze
Associate Professors: V. Briken, K. Cao, A. Jose, V. Lee, S. Mount, R. Stewart, W. Winkler, L. Wu (IBBR)
Assistant Professors: D. Dwyer, S. Roy, M. Scull
Senior Lecturer: P. Shields
Lecturers: J. Buchner, K. Frauwirth, M. Keller, E. Moctezuma
Affiliate Professors: M. Colombini (Biol), J. Culver (AGNR), I. Hamza (AGNR), W. Jeffery (Biol), I. Mather (ANGR), D. Perez (AGNR)
Affiliate Associate Professors: I. Ades (Biol), D. Perez (AGNR), L. Pick (Ent), M. Pop (CBCB), L. Taneyhill (AGNR), S. Xiao (IBBR)
Affiliate Assistant Professors: Y. Li (BSOS)
Adjunct Professors: P. Hobart (USAMRIID), A. McBride (Adjunct Prof), B. Moss (NIH), V. Vakharia (UMBI), O. White (TIGR), R. Wickner (NIH)
Adjunct Associate Professors: E. Freed (NCI), K. Green (NIH)
Professors Emeriti: N. Allewell, T. Cook (Prof Emeritus), R. Doetsch, E. Gantt (Dist Univ Prof), F. Hetrick, S. Joseph, G. Patterson, M. Pelczar, J. Reveal, B. Roberson, R. Weiner, S. Wolniak (Prof Emeritus), R. Yuan

The Major

The department participates in the teaching and advising of students in the Biological Sciences Program, specifically in the Specialization Areas of Cell Biology & Genetics (CEBG), Microbiology (MICB), and General Biology (GENB). Our courses are taught in four basic areas that represent faculty research interests and expertise including:

- Cell and Developmental Biology
- Genetics and Genomics
- Microbiology, Microbial Pathogenesis and Immunology
- Plant Biology

Requirements for the Specialization Areas
See Biological Sciences Program catalog entry for more information on the degree requirements.

Admission to the Major

The BSCI major is a limited enrollment program. Please refer to the limited enrollment programs page at http://www.lep.umd.edu/ for further information.

Requirements for the Major

See Biological Sciences Program catalog entry for more information on the degree requirements.

Advising

Advising is mandatory for certain students (freshmen, change in major, GPA of 2.5 or below). The Department in coordination with the Student Affairs Office of the College of Chemical and Life Sciences administers the advising of students in the Biological Sciences specialization areas of Microbiology, Cell Biology and Genetics, and General Biology (N-Z). Advising assignments can be found by contacting the Cell Biology and Molecular Genetics Undergraduate Program Office, 1109 Microbiology (301-405-5435).

Undergraduate Research Experiences

Students may participate in Department hosted research experiences in faculty laboratories or laboratories at off campus locations. Please contact the Cell Biology and Molecular Genetics Undergraduate Office (301-405-2766) for more information or see the site: http://bsci.umd.edu/ under "Research and Internships".
Specific courses in the department that offer credit for the research are described at: http://cbmg.umd.edu/undergraduate/undergrad-research/
Areas of research in the CBMG department are described at: http://cbmg.umd.edu/research-areas/ with listing of faculty and their research.

Honors Program

The Departmental Honors Program involves a long term (three semester) independent research project undertaken with a faculty advisor. Students register for BSCI378H (research) and BSCI379H (seminar) each semester. Admission is based upon GPA. Students must arrange the research opportunity prior to application. Please contact the Cell Biology and Molecular Genetics Undergraduate Office for more information or see the site: http://cbmg.umd.edu/undergraduate/undergrad-research/undergrad-honors/.

Student Societies and Professional Organizations

All students interested in microbiology are encouraged to join the University of Maryland Student Chapter of the American Society for Microbiology. Sigma Alpha Omicron is the honors chapter of this group. The groups meet regularly on campus. Information is available through the Undergraduate Program Office.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

The department recognizes graduating seniors with awards funded by generous donors. These are listed at http://cbmg.umd.edu/cbmg-home/scholarships-awards/.

Central European, Russian and Eurasian Studies (CERE)

College of Arts and Humanities
2115 Francis Scott Key Hall, 301-405-4284
www.ceres.umd.edu
dolbilov@umd.edu
Director: M. Dolbilov
Professors: J. Herf, S. Mansbach, P. Murrell, J. Robinson, V. Tismaneanu
Associate Professors: M. Dolbilov, J. Kaminski, M. Lekic, C. Martin, E. Papazian, C. Schuler
Assistant Professors: E. Adler (Visit Asst Prof), S. Cameron (Asst Prof), P. Kosicki (Asst Prof), M. Landa (Asst Prof)
Lecturers: Z. Gerus-Vernola (Lecturer)

The Major

The CERES program fosters in-depth knowledge of the region stretching from Prague in the West to Vladivostok in the East. This includes three main areas: Central and Eastern Europe, Russia, and Eurasia (the newly independent states of the former Soviet Union). Our majors prepare for careers and graduate programs in which an in-depth knowledge of Russia, Central Europe, and Eurasia can be applied with great benefit, such as journalism, government service, diplomacy, business, a variety of professional schools, and M.A. and Ph.D. programs in the humanities and social sciences. Our majors take courses in a range of different departments, gaining a firm grounding in the languages, literatures, history, politics, and economics of their area of study. They have the flexibility to do coursework in other fields related to the area as well. Students learn to examine our area of study with the tools of many scholarly fields. Courses that count toward this major may be found under the following acronyms: ARTH, ECON, GEOG, GERM, GVPT, HIST, PHIL, RUSS, SOCY, THET.

Program Objectives

The program strives to promote interdisciplinary and comparative approaches to studying the languages, history and culture across the vast region of the former Soviet Union and Eastern and Central Europe.

Program Learning Outcomes

Having completed the multi-disciplinary degree program, students are expected to attain the following learning outcomes: 1. Students will demonstrate the ability to communicate effectively in writing in either Russian, German, or a Central/East European language (including Czech, Polish, Hungarian, Serbian and Croatian, Bulgarian, and Romanian); or in a Eurasian language (i.e., a language from a country formerly part of the Soviet Union). 2. Students will demonstrate the ability to conduct research using primary and secondary sources including archival, print and non-print, and web-based texts. 3. Students will demonstrate understanding of and sensitivity to cultural diversity by studying a variety of cultures and societies within the CERE region.

Admission to the Major

Admission is open to all interested students but should be approved in a meeting with the Director.

Placement in Courses

Placement in language courses is determined by the advisor for a given language. Before you enroll in a Russian or German language class, you must take the on-line "Foreign Language Placement Assessment": https://www.arhu.umd.edu/undergraduate/flpa. However, final placement into the correct level will be determined by the advisor for the language you wish to study.

Requirements for the Major

Requirements for the CERES major include the College of Arts and Humanities' mandated completion of 45 3xx or 4xx-level credits. The College's Global Engagement Requirement will be automatically fulfilled in the process of fulfilling the CERES requirement of taking either Russian, German, or a Central/East European language (including Czech, Polish, Hungarian, Serbian and Croatian, Bulgarian, and Romanian). The language requirement may also be fulfilled by a Eurasian language (i.e., a language from a country formerly part of the Soviet Union). Those interested in fulfilling the CERES language requirement through a Central/East European or Eurasian language should consult the director upon entering the program.

Students who elect the Russian language track must complete a minimum of 24 credit hours in Russian language and literature selected from among the following courses (or their equivalents):

		Credits
RUSS101	Intensive Elementary Russian I	6
RUSS102	Intensive Elementary Russian II	6
RUSS201	Intermediate Russian I	5
RUSS202	Intermediate Russian II	5
RUSS301	Advanced Russian I	3
RUSS302	Advanced Russian II	3

RUSS303	Russian Conversation: Functional Skills	3
RUSS321	Survey of Russian Literature I	3
RUSS322	Survey of Russian Literature II	3
RUSS401	Advanced Russian Composition	3
RUSS402	Practicum in Written Russian	3
RUSS403	Russian Conversation: Advanced Skills	3
RUISS404	Practicum in Spoken Russian	3

Students interested in specializing primarily on Central/Eastern Europe may opt for the German language track, and must complete a minimum of 24 credit hours in the Department of Germanic Studies from among the following courses (or their equivalents):

		Credits
GERM103	Intensive Elementary German	4
GERM203	Intensive Intermediate German	4
GERM301	Conversation and Composition I	3
GERM302	Conversation and Composition II	3

- Also accepted will be 16 credit hours of Russian or German and the equivalent of 8 credit hours of a Central/East European language.
- Fulfilling the language requirement through a Eurasian language will be decided on a case-by-case basis in consultation with the director.
- In addition to language courses, students must complete 24 hours of CERES approved courses at the 3xx-level or above. These 24 hours must be taken in at least four different departments (with the School of Languages, Literatures and Cultures counting as a single department), and may include language-literature courses beyond the required 24 hours. Of the 24 hours, at least 9 hours must be in courses with substantial or specific focus on Central/East Europe *(for example, ARTH350 or 488C, GVPT359, 409, HIST319, 340, 443 and other special courses offered in the CERES area with the approval of the director)* and at least 9 hours must be in those CERES courses with substantial or specific Russian/Eurasian focus *(for example, GEOG325, GVPT445, 451, 459A, 481, HIST344, 424, 425, 442, SOCY474, THET499, and other special courses offered in the CERES area with the approval of the director).*

For a full listing of this year's CERES courses, see the website www.ceres.umd.edu, and click on "Requirements."

The various cooperating departments also offer special (i.e. non-permanent) seminars and courses in the Russian, East European, and Eurasian fields. HIST237-Russian Civilization is recommended as a general introduction to the program but does not count toward the fulfillment of the program's requirements.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Advising

Course selection and progress toward programmatic requirements are to be discussed individually through meetings with the CERES director.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

Students are encouraged to pursue research, internship and study abroad experiences. Such opportunities should be discussed individually with the Director.

Internships

Students are encouraged to seek off-campus internships that may be available in the greater DC-Baltimore area. Earning academic credit for such experiences should be discussed individually with the Director.

Student Societies and Professional Organizations

CERES majors are eligible for nomination to national honor societies related to their studies, including Dobro Slovo, the National Slavic Honor Society.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

CHEMICAL AND BIOMOLECULAR ENGINEERING (CHBE)

A. James Clark School of Engineering
2113 Chemical and Nuclear Engineering Building, 301-405-1935
www.chbe.umd.edu
Chair: S. Ehrman
Professors: R. Adomaitis, M. Anisimov, R. Calabrese, K. Choi, S. Raghavan, E. Wachsman, W. Weigand, M. Zachariah
Associate Professors: A. Asa-Awuku (Assoc Prof), P. Dimitrakopoulos, J. Klauda, G. Sriram, C. Wang, N. Wang
Assistant Professors: A. Karlsson, D. Liu, T. Woehl (Asst Prof)
Affiliate Professors: M. Al-Sheikhly, W. Bentley, D. DeVoe, J. Fisher, G. Jackson, P. Kofinas, S. Lee
Adjunct Professors: V. Dwivedi (Adjunct Asst Prof), M. Klapa, C. Peters (Adjunct Prof)

Professors Emeriti: S. Greer (Affiliate Prof, Prof Emerita), T. McAvoy, T. Regan, J. Sengers, T. Smith

The Major

Students in the Department of Chemical and Biomolecular Engineering at the University of Maryland learn to use a combination of mathematical, physical, chemical, and biological science concepts within a rigorous engineering design framework, graduating with a unique set of skills highly valued by a wide range of employers in industry, academia, and the government. The wide breadth of this profession and the Department's unique strengths in nanotechnology and biotechnology prepare our students for outstanding careers.

Because of the wide range of ultimate applications, the chemical engineer finds interesting and diverse career opportunities in such varied fields as chemical (inorganic and organic), food processing and manufacturing, metallurgical, polymer, energy conversion, environmental engineering, petroleum (refining, production, or petrochemical), and pharmaceutical industries. Additional opportunities are presented by the research and development activities of many public and private research institutes and all government agencies. Our graduates have taken jobs with companies like DuPont, ExxonMobil, Proctor & Gamble, the Food and Drug Administration, and the Department of Defense.

On top of all the options and opportunities, chemical and biomolecular engineers have traditionally ranked at or near the top of starting salaries among all of the engineering professions!

Courses offered by this department may be found under the following acronyms: ENCH & CHBE

The Bachelor of Science degree in Chemical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 415 North Charles Street, Baltimore, MD 21201, telephone: (410) 347-7700.

Program Objectives

- Graduates with a solid foundation in chemical engineering science fundamentals as well as a broad background in science and mathematics to equip them to enter professional and chemical engineering practice and to enter graduate study at leading universities.

- Graduates who will excel in traditional chemical engineering careers and diverse careers in areas such as biotechnology, nanotechnology, medicine, law or business.

- Graduates who are equipped with solid quantitative problem solving, teamwork, communication skills, adaptability to new technologies and a strong ethical foundation that will serve them throughout their careers.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

- An ability to apply knowledge of chemical engineering fundamentals to identify and solve chemical engineering problems.
- An ability to identify and solve problems in specialized areas related to chemical engineering.
- An ability to apply mathematics relevant to engineering and the physical and chemical sciences to identify and solve technical problems.
- A broad knowledge necessary to understand the impact of engineering solutions in a global and societal context.
- An ability to identify engineering problems and propose appropriate solutions.
- An ability to perform step-by-step design of engineered systems and chemical processes.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- The knowledge of computers and information technology necessary to function effectively as chemical engineers
- An awareness of safety and environmental issues as an integral part of the chemical engineering profession.
- An ability to successfully participate in teams.
- An ability to communicate effectively through oral presentations and written reports.
- An understanding of professional and ethical responsibilities
- Skills necessary for employment in a variety of positions in industry or government or for continued study in graduate or professional schools.
- An understanding of current technological issues related to chemical engineering.
- An ability to engage in structured research.
- An appreciation for excellence and diversity.
- An ability and the motivation to engage in life-long learning, and the ability to conduct research using resources beyond the undergraduate curriculum.

Requirements for the Major

IMPORTANT: This section contains requirements for incoming freshman or transfer students entering the B.S. program in Chemical and Biomolecular Engineering Fall 2010 and later. For students entering the program before Fall 2010 see requirements here (http://www.chbe.umd.edu/undergraduate/fall2010tospring2011).

The undergraduate program is designed to be completed in four years. It is important to follow the sample program as closely as possible, as nearly all CHBE classes are offered only once a year. All Chemical and Biomolecular Engineering students must participate in an advising session prior to registering each semester. Students are assigned a faculty advisor at the start of their first semester in the major. Questions about the undergraduate program may be sent to Kathy Lopresti at lopresti@umd.edu.

Courses appearing in bold are offered by the Department of Chemical and Biomolecular Engineering.

Freshmen Year: Fall semester

Course		***Credits***
ENES100	Introduction to Engineering Design	3
MATH140	Calculus I	4
CHEM135	General Chemistry for Engineers	3
CHEM136	General Chemistry for Engineers Laboratory	1
	General Education	3
Total Credits		14

Freshmen Year: Spring semester

Course		***Credits***
ENGL101	Introduction to Writing	3
MATH141	Calculus II	4
PHYS161	General Physics: Mechanics and Particle Dynamics	3
BIOE120	Biology for Engineers	3
CHBE101	**Introduction to Chemistry & Biomolecular Engineering**	3
Total Credits		16

Sophomore Year: Fall semester

Course		**Credits**
MATH241	Calculus III	4
PHYS260	General Physics II	3
PHYS261	General Physics II Laboratory	1
CHEM231	Organic Chemistry I	3
CHEM232	Organic Chemistry Laboratory I	1
CHBE250	**Computer Methods in Chemical Engineering**	3
CHBE301	**Chemical and Biomolecular Engineering Thermodynamics I**	3
Total Credits		18

Sophomore Year: Spring semester

Course		*Credits*
MATH246	Differential Equations for Scientists and Engineers	3
PHYS270	General Physics III	3
PHYS271	General Physics III Laboratory	1
CHEM241	Organic Chemistry II	3
CHEM242	**Organic Chemistry II Laboratory**	1
CHBE302	**Chemical and Biomolecular Engineering Thermodynamics II**	3
	General Education	3
Total Credits		17

Junior Year: Fall Semester

Course		*Credit*
CHBE410	**Statistics and Experimental Design**	3
CHBE422	**Chemical and Biomolecular Transport Phenomena I**	3
CHBE440	**Chemical Kinetics & Reactor Design**	3
CHEM272	General Bioanalytical Chemistry Laboratory	2
ENGL393	Technical Writing	3
	General Education	3
Total Credits		17

Junior Year: Spring Semester

Course		*Credit*
BCHM461 or BCHM463	Biochemistry I or Biochemistry of Physiology	3
ENMA300 or ENMA425 or BIOE453	Intro to Materials and Their Applications or Introduction to Biomaterials or Biomaterials	3
CHBE424	**Chemical and Biomolecular Transport Phenomena II**	3
CHBE426	**Chemical and Biomolecular Separation Processes**	3
CHBE333	**Communication Skills for Engineers**	1
	General Education	3
Total Credits		16

Senior Year: Fall Semester

Course		*Credit*
CHBE437	**Chemical & Biomolecular Engineering Lab**	3
CHBE442	**Chemical & Biomolecular Systems Analysis**	3
CHBE444	**Process Engineering Economics and Design I**	3
TECH ELECT	Technical Elective*	3
	General Education	3
Total Credits		15

Senior Year: Spring Semester

Course		*Credits*
CHBE446	**Process Engineering Economics & Design II**	3
TECH ELECT	Technical Elective*	3
TECH ELECT	Technical Elective*	3
	General Education	3
	General Education	3
Total Credits		15

Technical Elective list of approved courses: http://www.chbe.umd.edu/undergraduate/current

Degree Credits: 128 credits and fulfillment of all departmental, college, and university requirements with a cumulative grade point average of 2.

Advising

All students choosing Chemical and Biomolecular Engineering as their primary field must see their assigned undergraduate advisor each semester. Please contact Kathy Gardinier (Lopresti) at 301-405-5888 or lopresti@umd.edu for your assigned advisor information.

Undergraduate Research Experiences

A unique aspect of the Department's undergraduate program is its high level of students' participation in cutting-edge research. Approximately half of our students graduate with significant lab experience and most find it to be one of the high points of their undergraduate education.

Honors Program

The A. James Clark School of Engineering hosts a chapter of the Omega Chi Epsilon National Honor Society for chemical engineering, as well as a chapter of the engineering honor society, Tau Beta Pi.

Student Societies and Professional Organizations

Students operate a campus student chapter of the professional organization, the American Institute of Chemical Engineers. Omega Chi Episilon is the honorary Chemical Engineering Society. OXE is our Honors Society.

Scholarships and Financial Assistance

Financial aid based upon need is available through the Office of Student Financial Aid. A number of scholarships are available through the A. James Clark School of Engineering. The department offers opportunities for research and other part-time employment.

Awards and Recognition

Annual awards are given to recognize scholarship and outstanding service to the Department, College, and University.

CHEMISTRY AND BIOCHEMISTRY (CHEM, BCHM)

College of Computer, Mathematical & Natural Sciences
0107H Chemistry Building, 301-405-1788
www.chem.umd.edu
chem-web@umd.edu
Chair: J. Reutt-Robey
Professors: M. Alexander, D. Beckett, N. Blough, J. Davis, P. DeShong, B. Eichhorn, D. Falvey, C. Fenselau, J. Fourkas, D. Fushman, O. Herzberg, L. Isaacs, C. Jarzynski, S. Lee, G. Lorimer, A. Mignerey, A. Mullin, J. Ondov, J. Orban, G. Papoian, R. Salawitch, L. Sita, A. Vedernikov, W. Walters, L. Wang, J. Weeks, M. Zachariah
Associate Professors: T. Dayie, D. Julin, J. Kahn, N. LaRonde, C. Lee, P. Paukstelis, Y. Wang
Assistant Professors: O. Gutierrez, Z. Nie, M. Poulin, E. Rodriguez, P. Tiwary
Senior Lecturer: B. Dixon, M. Montague-Smith
Lecturers: C. Addei-Maanu, C. Capp, L. Friedman, E. Griffith, M. Koppel, L. Stocker, E. Stone, B. Walters, N. White
Affiliate Professors: N. Allewell, M. Colombini, R. Dickerson, J. Dinman, W. McDonough, S. Raghavan, W. Winkler
Adjunct Professors: H. Bluhm, P. Dagdigian, M. Doyle, A. Grishaev, L. Locascio, J. Marino, E. Mazzola, B. Nikoobakht, R. Nussinov, J. Petersen, C. Ridge, H. Sintim, D. Thirumalai
Associate Research Scientist: K. Gaskell
Assistant Research Scientist: R. Singh
Assistant Research Professor: J. Klos
Professors Emeriti: J. Bellama, H. DeVoe, D. Freeman, S. Greer, S. Grim, J. Hansen, G. Helz, J. Huheey, B. Jarvis, P. Mazzocchi, G. Miller, T. O'Haver

The Major

The study of molecular and atomic properties and interactions that encompass Chemistry and Biochemistry are central to many scientific disciplines including biology, geology, astronomy, environmental science, materials science and numerous others. Chemistry and Biochemistry majors continue to graduate or professional school, and obtain employment as educators and technical scientists. Courses offered by this department may be found under the following acronyms: BCHM, CHEM

Admission to the Major

Chemistry and Biochemistry are part of a Limited Enrollment program (LEP) within the College of Computer, Mathematical, and Natural Sciences (CMNS). Current UMCP students who wish to declare in CHEM or BCHM must complete a series of gateway courses (CHEM146/177 (or CHEM131/132), CHEM237 (or CHEM231/232), and MATH140 and MATH141) prior to applying to the program. Information is available at: http://www.lep.umd.edu.

Placement in Courses

The Department of Chemistry and Biochemistry rigorously enforce all of its prerequisites. Enrollment in CHEM131/132 or CHEM146/177 requires placement in calculus (MATH120 or MATH130 or MATH140).

Requirements for the Major

Note: The lower-level courses offered by the Department of Chemistry and Biochemistry changed starting in the Fall 2013 semester. The lower-level requirements for chemistry and biochemistry majors are reflected in the requirements listed below. For details, contact the Undergraduate Office or visit the undergraduate section of the Department's website.

Chemistry Majors

All required chemistry and biochemistry courses must be passed with a minimum grade of "C-". Required supporting courses, including BSCI170&171, must be passed with a 2.0 grade point average.

		Credits
	Required Courses	
CHEM146/177	Principles of General Chemistry / Introduction to Laboratory Practices and Research in the Chemical Sciences	5
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4

CHEM276/277	General Chemistry and Energetics(Majors) / Lab	5
CHEM395	Professional Issues in Chemistry and Biochemistry	1
CHEM425	Instrumental Methods of Analysis	4
CHEM481/483	Physical Chemistry I / Lab	5
ENGL101	Introduction to Writing	3
UNIV100	The Student in the University	1
	Supporting Courses	
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
PHYS141/142	Principles of Physics	8
MATH140	Calculus I	4
MATH141	Calculus II	4
	NOTE: *All majors and potential majors are encouraged to take MATH241-Calculus III (4) prior to beginning Physical Chemistry.*	
	Departmental Requirements	
	Lower level courses	18
	Supporting courses	20
	Upper level courses	24
	must include:	
CHEM401	Inorganic Chemistry	3
CHEM482/484	Physical Chemistry II / Lab	5
ELECT UL	approved upper level CHEM/BCHM courses	6

In order to meet requirements for a degree approved by the American Chemical Society (ACS), students must complete a specific set of courses in addition to this curriculum. Information about ACS certification can be obtained in the undergraduate office.

Biochemistry Majors

All required chemistry, biochemistry, and upper-level biological sciences courses must be passed with a minimum grade of "C-". Required supporting courses, including BSCI170&171, must be passed with a 2.0 grade point average.

		Credits
	Required Courses	
CHEM146/177	Principles of General Chemistry / Introduction to Laboratory Practices and Research in the Chemical Sciences	5
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4

CHEM276/277	General Chemistry and Energetics - Majors / Lab	5
CHEM395	Professional Issues in Chemistry and Biochemistry	1
CHEM425	Instrumental Methods of Analysis	4
CHEM481/483	Physical Chemistry I / Lab	5
ENGL101	Introduction to Writing	3
UNIV100	The Student in the University	1
	Supporting Courses	
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
PHYS141/142	Principles of Physics	8
MATH140	Calculus I	4
MATH141	Calculus II	4
	NOTE: *All majors and potential majors are encouraged to take MATH241-Calculus III (4) prior to beginning Physical Chemistry.*	
	Departmental Requirements	
	Lower level courses	18
	Supporting courses	20
	Upper level courses	25
	must include:	
BCHM461	Biochemistry I	3
BCHM462	Biochemistry II	3
BCHM464	Biochemistry Laboratory	3
BCHM465	Biochemistry III	3
BCHM485	Physical Biochemistry	3
	approved biological science courses	6

* Specific information about course requirements can be obtained in the undergraduate office.

* Students who enroll in the chemistry or biochemistry program at any time following the first semester of study typically will complete all or part of the non-majors introductory sequence (CHEM131,132, 231/232, 241/242 and 271/272; CHEM132, 232, 242 and 272 are co-requisite laboratory courses). In this situation, completion of an additional approved upper level CHEM or BCHM course may be required to fulfill the lower-level departmental major requirements. Transfer students who wish to pursue chemistry or biochemistry majors will have their previous chemistry course work carefully evaluated for placement in the appropriate courses.

Other Requirements for the Major

Information about and requirements of the CHEM and BCHM majors can be found at: http://www.chem.umd.edu/undergraduateprogram/current-students/majoradvising.

Advising

There is mandatory advising for all Chemistry and Biochemistry majors each semester. Advising appointments can be made by contacting the undergraduate office, 1206 Chemistry Building, 301-405-1791. Information can be found at: http://www.chem.umd.edu/undergraduateprogram/current-students/majoradvising

Honors Program

Students with a GPA of 3.0 or better who have completed at least two semesters of CHEM399 (Introduction to Chemical Research) have an opportunity to sign up for CHEM398 (Honors Research) in their senior year and be considered for departmental honors. After successful completion of a senior honors thesis and seminar, graduation with honors or with high honors in chemistry or biochemistry can be attained. Details are available here: http://www.chem.umd.edu/undergraduateprogram/current-students/chemistry-biochemistry-honors-program

Student Societies and Professional Organizations

Alpha Chi Sigma Chemistry Fraternity is a professional fraternity which recruits men and women students from chemistry, biochemistry, and related science majors during each fall and spring semester. The fraternity holds weekly meetings and provides tutoring for students in lower-level chemistry courses. The office is in Room 2106A Chemistry Building. Dr. Joseph Houck is the faculty advisor (Room 1102 Chemistry Building, 301-405-9289).

The student affiliate program of the American Chemical Society (SA-ACS) is designed to introduce students in chemistry, biochemistry and related fields to a variety of professional activities. Student affiliates will gain skills and make contacts aimed at launching a successful career in science. Activities include networking and meeting with professionals, attending national meetings, and participating in public outreach programs. Affiliates also receive subscriptions to Chemical & Engineering News, the undergraduate career magazine, *in Chemistry*, as well as gaining on-line access to announcements regarding job and intern opportunities. The student affiliate office is located in Room 2112A of the Chemistry Building.

Scholarships and Financial Assistance

The Department awards several scholarships to undergraduate majors with financial need and outstanding academic records, including the Isidore and Annie Adler Scholarship, the Leidy Foundation Scholarship, the G. Forrest Woods Scholarship, the James H. & Patricia H. Rich Scholarship, the Bruce Jarvis Scholarship, the Francesco Barone Scholarship, and the James Stewart Scholarship. Scholarship amounts are contingent on available funds and some may be divided among multiple awardees. Any given scholarship is not necessarily awarded every year. There is no application process; all declared chemistry and biochemistry majors are automatically reviewed annually by the Departmental Awards Committee. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the

awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Chinese (CHIN)

College of Arts and Humanities
2106 JimÃ©nez Hall, 301-405-4025
www.chinese.umd.edu
Associate Professors: A. Schonebaum, M. Zhou
Assistant Professors: S. Hashimoto
Senior Lecturer: G. Hu, M. Kong, J. Lee-Heitz
Lecturers: Y. Wang

The Major

The Chinese major (CHIN) provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Chinese and another discipline such as business, government and politics, economics, or journalism. Chinese students have the option of applying to live in St. Mary's Hall (Language House) and participating in a study abroad program.

Program Learning Outcomes

Students will be able to ask and answer simple questions on familiar topics, and handle communicative tasks in immediate survival needs, using basic grammar and vocabulary. They will be able to find unfamiliar words in a Chinese dictionary, using both phonetic and graphic look-up methods (i.e., looking up a word by sound or by the structure of the character), and be able to read connected sentences in Chinese and analyze their grammar accurately.

Placement in Courses

http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

As of Fall 2007, the Chinese major requires 39 credits: 18 of language and 18 of non-language electives, as described below.

I. Language requirements. 18 credits of Chinese language at the 2xx level or above. Students placing into the program at higher levels should reach at least the level of CHIN302 or CHIN306 but may substitute non-language courses on China-related subjects for some of these 18 credits. (The final decision on what substitute courses may be used for the major rests with the Chinese Program and Chinese Advisor.) Language courses accepted for the major include:

CHIN201/202	Intermediate Spoken Chinese I and Intermediate Written Chinese I (must be taken and passed together)
CHIN203/204	Intermediate Spoken Chinese II and Intermediate Written Chinese II (must be taken together and passed together)
CHIN301	Advanced Chinese I
CHIN302	Advanced Chinese II
CHIN305	Life in China through TV Plays I
CHIN306	Life in China through TV Plays II
CHIN401	Readings in Modern Chinese I
CHIN402	Readings in Modern Chinese II
CHIN418A	Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women (taught in Chinese)
CHIN418B	Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth (taught in Chinese)
CHIN441	Traditional Chinese Fiction (taught in Chinese)
CHIN442	Modern Chinese Fiction (taught in Chinese)

II. Literature. 3 credits of Chinese literature at 3xx level or above. Courses accepted include:

CHIN314	Chinese Fiction and Drama in Translation
CHIN315	Modern Chinese Literature in Translation
CHIN316	Traditional Chinese Values
CHIN418A	Special Topics in Contemporary Chinese Fiction and Film: Sex and the City: Literary and Filmic Representations of Women (taught in Chinese)
CHIN418B	Special Topics in Contemporary Chinese Fiction and Film: The Representation of Youth (taught in Chinese)
CHIN442	Modern Chinese Fiction

III. Linguistics. CHIN307 and 3 credits of Chinese linguistics at 3xx level or above. Courses accepted include:

CHIN421	Sounds and Transcriptions of Mandarin Chinese
CHIN422	Advanced Chinese Grammar
CHIN423	Chinese Historical Phonology
CHIN424	Linguistics of the Chinese Writing System
CHIN428	Selected Topics in Chinese Linguistics
EALL300	The Languages of East Asia

IV. History/Civilization. 6 credits of Chinese history/civilization offered by other departments. Courses accepted include, but are not limited to:

EALL310	Asian Culture and the Sinosphere
HIST284	East Asian Civilization I
HIST285	East Asian Civilization II
HIST480	History of Traditional China
HIST481	A History of Modern China

"Special Topics" and "Colloquium" courses (those with variable numbers, ending in 8 or 9 and followed by a letter) may be acceptable depending on the actual title and content of the course at the time it is offered. The final determination is in the hands of the Chinese Program and the Chinese advisor.

Electives. 6 credits of electives at 3xx level or above, subject to the advisor's approval. In addition to all the specific courses listed under "Non-language Requirements" above, language courses and independent study may also be used toward this requirement.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Requirements for the Minor

Chinese Language

School of Languages, Literatures, and Cultures (SLLC)
www.chinese.umd.edu

The 15-credit minor in Chinese language will provide students with a sophisticated understanding of Chinese linguistic knowledge and a 3xx or 4xx level Chinese language skill. Students attempting this minor will need a strong background in Chinese at the level of Chinese 101 and CHIN102/103, which are prerequisites for some of the required courses. This minor will be of particular relevance to students with broad interest in learning Chinese language. Students interested in taking this minor program should contact the Chinese advisor in the Department of Asian and East European Languages and Literatures of the School of Languages, Literatures, and Cultures.

Requirements

A: Four 3-credit language courses from among the following - **12 credits**

CHIN201 Intermediate Spoken Chinese I
CHIN202 Intermediate Written Chinese I

CHIN203 Intermediate Spoken Chinese II
CHIN204 Intermediate Written Chinese II
CHIN205 Intermediate Chinese - Accelerated Track
CHIN207 Linguistic Resources for Students of Chinese
CHIN301 Advanced Chinese I
CHIN302 Advanced Chinese II
CHIN305 Life in China through TV Plays I
CHIN306 Life in China through TV Plays II
CHIN321 Classical Chinese I
CHIN322 Classical Chinese II
CHIN401 Readings in Modern Chinese I
CHIN402 Readings in Modern Chinese II
CHIN408 Classical Chinese II
CHIN411 Business Chinese I
CHIN412 Business Chinese II
CHIN413 Advanced Conversation and Composition
CHIN415 Readings in Current Newspapers and Periodicals
CHIN431 Translation and Interpretation I
CHIN432 Translation and Interpretation II
CHIN441 Traditional Chinese Fiction
CHIN442 Modern Chinese Fiction

B: One 3-credit linguistics-oriented course from the following - **3 credits**

CHIN421 Sounds and Transcriptions of Mandarin Chinese
CHIN422 Advanced Chinese Grammar
CHIN423 Chinese Historical Phonology
CHIN424 Linguistics of the Chinese Writing System
CHIN428 Selected Topics in Chinese Linguistics

- The course CHIN 331 "Chinese Calligraphy: Theory and Practice" may not be used for the Chinese major or minor.
- Students must receive a "C-" or better in all courses used for the minor. 9 of the 15 credits must be 3xx or 4xx level.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than six of the fifteen credits toward the minor may be taken at an institution other than UMCP.

To make an appointment to explore or declare a minor, go to
http://www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Dr. Gloria Hu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Annual Language Career and Internship Fair

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information see the SLLC website: http://www.sllc.umd.edu/.

Student Societies and Professional Organizations

Individual SLLC departments hold annual induction ceremonies for students who are eligible for honor society membership.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Civil and Environmental Engineering (ENCE)

A. James Clark School of Engineering
1173 Glenn L. Martin Hall, 301-405-7768
www.cee.umd.edu
Chair: C. Schwartz
Professors: M. Aggour, A. Amde, A. Aydilek, B. Ayyub, G. Baecher, G. Chang, A. Davis, A. Haghani, D. Lovell, R. McCuen, P. Schonfeld, M. Skibniewski, A. Torrents, Y. Zhang
Associate Professors: M. Austin, K. Brubaker, P. Chang, C. Cirillo, Q. Cui, D. Goulias, L. Zhang
Assistant Professors: B. Forman, B. Kjellerup, B. Phillips
Instructors: N. Andrade
Affiliate Professors: J. Gansler, B. Golden, E. Kalnay, M. Ruth

Professors Emeriti: P. Albrecht, F. Birkner, J. Colville, B. Donaldson, O. Hao, R. Ragan, D. Schelling, Y. Sternberg, D. Vannoy, M. Witczak

The Major

The B.S. degree requires a total of 122 credit hours with emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), and basic civil and environmental engineering core courses (computations, materials, fluid mechanics, probability & statistics, and Geographic Information Systems). By the Junior year, each student chooses one of three tracks: Geotechnical and Structural Engineering, Environmental and Water Resources, or Transportation/ Project Management. Each track specifies junior- and senior-level requirements. All three tracks include technical electives that may be selected from a combination of the six Civil Engineering specialties and other approved courses (the six specialty areas are: Environmental, Geotechnical, Project Management, Structural, Transportation, and Water Resources). The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

The degree is accredited by the Engineering Accreditation Commission of ABET

The Bachelor of Science degree in Civil and Environmental Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 415 North Charles Street, Baltimore, MD 21201, telephone: (410) 347-7700.

Program Objectives

The mission of the Department is threefold:

1. Provide a high quality, challenging education that encompasses breadth and depth; and prepare graduates to be proficient in both analysis and synthesis facets of civil engineering design;

2. Maintain a strong research program that is recognized for excellence in major areas of civil and environmental engineering;

3. Provide service to the University, the civil engineering profession, and the community at large.

The Department provides an educational program of basic and specialized engineering knowledge necessary for its graduates to be proficient in recognized specialties of civil engineering. This preparation provides graduates with the tools needed for successful practice in the period following graduation. In addition to general and technical education, the educational program stresses professional and ethical responsibilities, an awareness of societal issues, and the need for life-long learning.

The Department contributes to the advancement of knowledge through research on important engineering problems. The research results are communicated through recognized channels of knowledge dissemination.

The Department serves the needs of the community by emphasizing global and societal issues. The Department addresses these issues through University and professional channels and contributes to their solutions.

The Department, building upon the above mission, established three program educational objectives:

1. Prepare our graduates for competent professional practice within civil engineering related industries of Maryland and the mid-Atlantic region.

2. Create a cadre of graduates with the breadth of interests and skills to take on challenging new areas of engineering practice.

3. Instill in our graduates a recognition of the importance of continuing professional development.

Program Education Objectives

The faculty of the Department of Civil Engineering has established the following Program Educational Objectives:

- To understand, apply and develop fundamental knowledge in science, technology, engineering and mathematics.
- To attain advanced qualification in both specialization and breadth.
- To understand and apply business sensitive criteria in meeting professional responsibilities.
- To incorporate societally sensitive criteria into professional decisions.
- To develop forward-thinking attitudes that enhance communication and exemplary practice.

Decisions are to be based on assessments of the quality of our graduates and alumni, feedback from employers of our graduates, and self- assessment of the faculty and program in meeting our objectives and learning outcomes goals.

Program Learning Outcomes

Student Outcomes

In addition to ensuring technical competency of all graduates in the broad discipline areas of civil engineering, the Department must encourage the development of skills and abilities that will enhance the marketability of its graduates and provide them with the best possible opportunity

for success in the work place. As a result, the faculty has agreed to develop the following abilities and skills within each graduate and has approved the following Student Outcomes:

1. Mathematics	**13.** Teamwork
2. Natural sciences	**14.** Professional and ethical responsibility
3. Materials science	**15.** Humanities
4. Mechanics	**16.** Social Sciences
5. Experiments	**17.** Sustainability
6. Problem recognition and solving	**18.** Risk/uncertainty
7. Design	**19.** Globalization
8. Breadth in civil engineering areas	**20.** Contemporary issues and historical perspectives
9. Technical specialization	**21.** Communication
10. Project management	**22.** Leadership
11. Public Policy	**23.** Attitudes
12. Business and public administration	**24.** Lifelong learning

Admission to the Major

See the entrance requirements for the A. James Clark School of Engineering in the Colleges and Schools section of this site.

Requirements for the Major

The Department offers a program of study leading to an ABET-accredited Bachelor of Science in Civil Engineering (BSCE) degree. Each student specializes in one of three tracks: Infrastructure Engineering (Structural and Geotechnical), Environmental and Water Resources Engineering, or Transportation Systems and Project Management. A total of 122 credit hours (123 for the Environmental and Water Resources Track) are required for a BSCE degree with emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), basic civil and environmental engineering courses; required courses in the selected track; technical electives; and a senior capstone design course. The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

	Credits	**Credits**

	Freshman Year *(All Civil & Environmental Engineering)*	**First Semester**	**Second Semester**
MATH140	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
ENES100	Introduction to Engineering Design *(**can be taken first or second semester)*	**3	
ENES102	Mechanics I *(**can be taken first or second semester)*		**3
ENGL101	Introduction to Writing	3	
PHYS161	General Physics		3
ENCE100	Introduction to Civil & Environmental Engineering	1	
	General Education Program Requirements		6
	Total	**14**	**16**

	Sophomore Year *(All Civil & Environmental Engineering)*	**Credits First Semester**	**Credits Second Semester**
MATH241	Calculus III	4	
MATH246	Differential Equations for Scientists and Engineers		3
PHYS260/261	General Physics II with Lab	4	
ENES220	Mechanics II	3	
ENCE200	Civil Engineering Computation	3	
ENCE201	Engineering Information Processing		3
ENCE215	Engineering for Sustainability		3
ENCE305	Fundamentals of Engineering Fluids		3
	General Education Program Requirements	3	3
	Total	**17**	**15**

	Junior Year	**Credits First Semester**	**Credits Second Semester**
	Infrastructure Engineering Track		
ENGL393	Technical Writing		3
ENES221	Dynamics		3
ENCE300	Fundamentals of Engineering Materials	3	
ENCE302	Probability and Statistics for Civil & Environmental Engineers	3	
ENCE340	Fundamentals of Geotechnical Engineering		3
ENCE353	Introduction to Structural Analysis	3	
ENCE360	Analysis of Civil Engineering Systems	3	
ENCE	Electives*	3	3
	General Education Program Requirements		3
	Total	**15**	**15**

Transportation Systems & Engineering Management Track

ENGL393	Technical Writing		3
ENCE300	Fundamentals of Engineering Materials	3	
ENCE302	Probability and Statistics for Civil & Environmental Engineers	3	
ENCE320	Engineering Project Management		3
ENCE360	Analysis of Civil Engineering Systems	3	
ENCE370	Introduction to Transportation Engineering & Planning	3	
ENCE472	Transportation Engineering		3
ENCE	Electives*	3	3
	General Education Program Requirements		3
	Total	**15**	**15**
	Environmental & Water Resources Engineering Track		
ENGL393	Technical Writing		3
BIOE120	Biology for Engineers	3	
ENCE300	Fundamentals of Engineering Materials		3
ENCE302	Probability and Statistics for Civil & Environmental Engineers	3	
ENCE310	Introduction to Environmental Engineering	3	
ENCE360	Analysis of Civil Engineering Systems	3	
ENCE431	Hydrologic Engineering		3
ENCE	Breadth Electives*	3	3
	General Education Program Requirements		3
	Total	**15**	**15**

	Senior Year	**Credits First Semester**	**Credits Second Semester**
	Infrastructure Engineering Track		
ENCE320	Engineering Project Management	3	
ENCE444	Experimental Methods in Geotechnical & Structural Engineering		3
ENCE454	Design of Concrete Structures	3	
ENCE441	Foundation Design	3	
ENCE466	Design of Civil Engineering Systems		3
ENCE	Electives *	3	6
	General Education Program Requirements	3	3
	Total	**15**	**15**
	Transportation Systems & Engineering Management Track		
ENCE402	Simulation and Design of Experiments for Engineers		3
ENCE422	Project Cost Accounting & Economics		3
ENCE423	Project Planning, Scheduling & Control	3	

ENCE470	Highway Engineering	3	
ENCE466	Design of Civil Engineering Systems		3
ENCE	Electives*	6	3
	General Education Program Requirements	3	3
	Total	**15**	**15**
	Environmental and Water Resources Engineering Track		
ENCE411	Environmental Engineering Science	3	
ENCE422	Project Cost Accounting & Economics		3
ENCE412	Environmental Engineering Unit Operations		3
ENCE432	Ground Water Hydrology	3	
ENCE466[+]	Design of Civil Engineering Systems		3
ENCE	Electives*	6	3
	General Education Program Requirements	3	3
	Total	**15**	**15**

Minimum Degree Requirements: 122 credits and the fulfillment of all departmental, school, and university requirements with a cumulative grade point average of at least 2.0. Additional semester credits will be involved to the extent that courses carrying more than three credits are selected.

+ENCE 466, Design of Civil Engineering Systems, may only be taken in the semester in which the student graduates.

***ENCE ELECTIVES**

For all tracts:
- 3XX, 4XX or 6XX. At least two must be ENCE courses
- No more than one ENCE489
- No more than 3 total ENCE with the same first two numbers

Breadth Electives

Geotechnical/Structure Track will include two electives from:

ENCE370,402,422,423,470,472 **-- OR--**
ENCE310,411,412,431,432

Transportation/Project Management Track will include two electives from:

ENCE340, 353, 441, 444, 454 **-- OR --**
ENCE 310, 411, 412, 431, 432

Environmental/Water Resources Track will include two electives from:

ENCE 340, 353, 441, 444, 454 **-- OR --**
ENCE 320, 370, 402, 423, 470, 472

Advising

Advising

All Civil and Environmental Engineering majors are advised by the following department faculty and staff:

1. Dr. Dimitrios Goulias, Director Undergraduate Program, 0147A Glenn L. Martin Hall, dgoulias@umd.edu, 301-405-2624).

2. Alan Santos, Director of Undergraduate Student Services, 0147C, Glenn L. Martin Hall, asantos@umd.edu, 301-405-1977.

3. Dr. Isabella Cooper, Academic Advisor, 0147E, Glenn L. Martin Hall, icooper@umd.edu, 301-405-0431.

Undergraduate Research Experiences

Department faculty frequently have research opportunities for undergraduate students. Students are encouraged to contact faculty members whose research specialties are of interest. For further information, students are encouraged to contact the Department advisors.

Internships

Career fairs are organized regularly throughout the academic years by the American Society of Civil Engineers (ASCE) (http://www.ascemaryland.org/) and the Chi Epsilon student chapters, and the Engineering Co-op & Career Services office.

Co-op Programs

Several excellent co-op opportunities are available for Civil and Environmental Engineering students. See the A. James Clark School of Engineering entry in Chapter 6 of this catalog for a full description of the Engineering co-op program.

Honors Program

See the A. James Clark School of Engineering Honors Program.

Student Societies and Professional Organizations

- American Society of Civil Engineers
- Chi Epsilon Civil Engineering Honor Society (by invitation)

- Engineers Without Borders
- ITS Student Chapter

Scholarships and Financial Assistance

The Department of Civil and Environmental Engineering awards a number of academic scholarships. These awards are designated primarily for junior and senior students and are listed on the Department web site http://www.cee.umd.edu/undergrad/awards. The Department evaluates applications each year. See the School of Engineering web site for further information and application instructions.

Awards and Recognition

The Department of Civil and Environmental Engineering assigns awards to students for excellence in academics, leadership, and service. The awards are listed in the Department web site: http://www.cee.umd.edu/undergrad/awards.

Classical Languages and Literature (CLAS)

College of Arts and Humanities
1210 Marie Mount Hall, 301-405-2013 or -2014
www.classics.umd.edu
ldoherty@umd.edu (Chair) or fbarrene@umd.edu (UG advisor)
Chair: L. Doherty
Professors: L. Doherty, J. Hallett (Distinguished Scholar-Teacher), G. Staley
Associate Professors: E. Adler
Assistant Professors: F. Barrenechea, J. Bravo
Lecturers: G. Bucher, M. Pittas-Herschbach
Affiliate Professors: J. Burton
Affiliate Associate Professors: J. Scholten
Professors Emeriti: H. Lee, S. Rutledge (Assoc Prof Emeritus), E. Stehle
Visiting Faculty: P. Parara (Visit Asst Prof)

The Major

Courses offered by this department may be found under the following acronym(s): CLAS, LATN, and GREK.

Classics is the study of ancient Greek and Roman culture in all its aspects. Greek and Roman culture provided the foundation of western culture, including its literature, ideas, art, politics, and conceptions of the individual. Greek myth is still a shared fund of images and narratives that express human experience. Latin is a major source of English vocabulary, and Greek provides technical language in many fields. Classics explores all of these aspects through over fifteen hundred years of history. It helps us understand the relationship of western culture to other cultural systems and situate ourselves better in the world.

Classics is an intellectually rich and versatile liberal arts major which teaches core skills, including effective communication, critical thinking, and an appreciation of diversity. Because it is interdisciplinary and holistic, a student of classics gets a three-dimensional view of cultures and literatures that are still major forces today. Studying Athenian democracy and the Roman Republic sharpens understanding of competing philosophical and political ideas. Studying Latin not only develops English vocabulary, but makes English grammar comprehensible. Both languages provide excellent analytic training and Classics students score among the top in the Analytic Writing section of the GRE exams.

Classics is a pre-professional major for law school or for graduate school in any aspect of the ancient world. Classics majors have also gone on to medical school and library school. Latin teachers are in demand and numerous students have found rewarding jobs teaching secondary school, with continued involvement in the Classics community. Others have gone into business or gotten jobs in (among other fields) professional writing or editing, archival work, academic administration, information technology, or social services.

Program Objectives

Classics provides students with a liberal arts education: skills in written and oral use of language, close reading, critical thinking, and the appreciation of art, literature, and culture. The core subject matter of Classics consists of the Greek and Latin languages, the texts originally written in these languages, and the art and material culture of the peoples who spoke them. The program also studies the reception of these works in modern times and their relevance to us today.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

1. Students must demonstrate the ability to interpret the cultural context of primary sources through a variety of methodological approaches.
2. Majors who take Latin and Greek are expected to demonstrate some level of language proficiency.

- Latin majors must be able to read and translate Latin at the advanced level.
- Latin and Greek majors must be able to read and translate either Latin or Greek at the advanced level and the other language at the intermediate level.
- Classical Humanities majors must be able to demonstrate the ability to assess Classical texts in translation, or primary evidence, through a variety of methodological approaches at the advanced level.

Academic Programs and Departmental Facilities

The Classics Department has its own Classics library as well as a Classics Club for its undergraduate students. It conducts annual study abroad programs in Italy, Greece, and France.

These programs abroad are open to non-majors as well as to Classics majors and minors. We also host a chapter of the national Classics honor society, Eta Sigma Phi; students are invited to join when they reach the 3xx level in either Latin or Greek with a B+ average in the language courses and a B average overall.

Admission to the Major

Admission to the major simply requires a meeting with the undergraduate advisor. No prior knowledge of Latin or Greek is required.

Placement in Courses

Students with a score of 4 or 5 in the AP Latin test receive credit for LATN201 (4 credits) and may not take LATN201 or lower for credit. For further information, and for placement in Latin or Greek courses, contact the department's undergraduate advisor. We do not yet have online placement exams for these languages but can place you based on our assessment of your previous course work. We offer four partial tuition scholarships each year to students who took Latin in high school and who continue their studies at UMCP.

Requirements for the Major

Requirements for the Classics major include the College of Arts and Humanities requirement of 45 3xx- or 4xx-level credits completed.

The College's Global Engagement Requirement will be automatically fulfilled in the process of taking language courses in the Latin, Greek, and Latin and Greek tracks of the major. Students in the Classical Humanities track who elect to study Latin or Greek to the intermediate level (LATN201 or GREK201) will also satisfy the Global Engagement Requirement.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

		Credits
	Option A: Latin	
LATN	Courses at the 2xx/3xx level	18
LATN	Courses at the 4xx level or higher	12
	Supporting courses	9-12
	Any level CLAS, GREK, or related fields such as HIST and ARTH	
	Option B: Greek	
GREK	Courses at the 2xx/3xx level	18
GREK	Courses at the 4xx level or higher	12
	Supporting courses	9-12
	Any level CLAS, LATN, or related fields such as HIST and ARTH	
	Option C: Latin and Greek	

LATN	Latin courses	18
GREK	Greek courses*	12
	OR	
GREK	Greek courses	18
LATN	Latin courses*	12
	AND	
	Supporting Courses	9
	For example, CLAS170, HIST110, and a 3xx- or 4xx-level course in Greek or Roman history	

**Students with no previous training in the second language may count introductory level courses as part of the 12-hour requirement.*

Option D: Classics in Translation (Classical Humanities)

I. Foundation Courses - 12 credits at the 1xx-2xx level, at least 6 of which must be in Classics (CLAS courses).*

*The introductory Latin or Greek sequence (101, 102, and 201), if taken at College Park, fulfills this requirement. If LATN120 and 201 are taken at College Park, only one additional course at the 1xx-2xx level is required. If no language is taken, four courses in English translation, including at least two in Classics, are required. Students who are capable of working at a higher level may request departmental approval to substitute 3xx or 4xx-level courses for some of the introductory credits.

II. Advanced Courses - eight courses at the 3xx-level or above, of which four must be in Classics and one must be CLAS409X (capstone seminar), to be taken in the junior or senior year. As a special exception, either LATN201 or GREK201, intermediate Latin or Greek, may be counted as one of the advanced courses. Students are still required to fulfill the ARHU requirement of 45 3xx-4xx level credits.

Other Requirements for the Major

Students in the Classical Humanities track should work with their advisor to craft a meaningful set of courses with a focus on some particular aspect of the classical world, such as myth and religion, literature in its historical context, visual and material culture, or classical reception.

Requirements for the Minor

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Archaeology

The interdisciplinary minor in Archaeology is intended to introduce students to the global importance of archaeology and its value as a mode of scholarly inquiry.

The minor requires a minimum of 15 credits and consists of three elements:

1. A required 3-credit, 3xx-level course, Archaeological Methods and Practice, cross-listed as ANTH305, CLAS305, and ARTH305, to be offered once each year. There is a one-course prerequisite, to be chosen from among the following: ANTH240, CLAS180, ARTH200.

2. 3 to 6 credits in approved courses offering fieldwork experience. There are many options at UMCP, including historical archaeology courses in ANTH that do not require travel abroad. Study-abroad programs at other institutions must be approved in advance by a UMCP faculty member with the appropriate specialization.

3. 6 to 9 credits in supporting courses involving subject matter that includes a significant focus on archaeology (in, e.g., ARCH, ANTH, ARTH, CLAS, HIST, JWST, LARC, RELS). A list of approved courses will be made available to students interested in the minor. The list will be updated as course offerings change.

Advising will be coordinated in any given year by the faculty member who is teaching the required, cross-listed course. Contact Prof. Lillian Doherty in the Classics Department for information.

As required for all minors, at least 9 credits overall must be in courses at the 3xx- or 4xx-level. The grade point average in the minor must be at least 2.0 and no grade below "C-" can be counted toward the minor. A maximum of 6 credits may be counted toward both the minor and the student's major. A maximum of 6 credits earned at other institutions may be counted toward the minor.

Classical Mythology

This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits.

Required courses:
CLAS170 Greek and Roman Mythology (3)
CLAS470 Approaches to Greek Myth (3)

In addition, the student must choose three courses from the following list, two of which must be at the 3xx- or 4xx-level:
CLAS270 Greek Literature in Translation (3)
CLAS271 Roman Literature in Translation (3)
CLAS320 Women in Classical Antiquity (3)
CLAS330 Ancient Greek Religion: Gods, Myths, Temples (3)
CLAS331 Ancient Roman Religion: From Jupiter to Jesus (3)
CLAS370 Classical Myths in America (3)
CLAS374 Greek Tragedy in Translation (3)
CLAS419 The Classical Tradition (3)

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Latin

This minor introduces students to the Latin language and enables them to read, in Latin, important works of Latin literature. For students with no prior experience of Latin, the minor requires 21 credits, consisting of the following courses:

Latin101 Elementary Latin I (4)
Latin102 Elementary Latin II (4)
Latin201 Intermediate Latin (4)
Latin3xx Two reading courses chosen from the following: Plautus, Petronius, Ovid or Horace and Catullus (6)
Latin4xx A reading course in a major Latin author (3)

Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 2xx-level and beyond. Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Greek Language and Culture

This minor may be earned in EITHER the ancient or the modern Greek language (not a combination). In completing it, the student will reach an intermediate or advanced level of proficiency in the language and will also be introduced to the history and culture of Greece.

The minor requires 9 to15 credits in ancient OR modern Greek language courses, i.e., courses with the GREK prefix; at least one language course must be at the 3xx- or 4xx-level. All the language courses counted toward the minor must be in either ancient OR modern Greek, not a combination.

The minor also requires 3 to 6 credits in courses taught in English; these may focus on either ancient or modern Greek literature, history, and culture.

As required for all minors, at least 9 credits overall must be in courses at the 3xx- or 4xx-level. The grade point average in the minor must be at least 2.0 and no grade below "C-" can be counted toward the minor. A maximum of 6 credits may be counted toward both the minor and the student's major. A maximum of 6 credits earned at other institutions may be counted toward the minor.

To make an appointment to explore or declare a minor, contact the department chair, Dr. Lillian Doherty (ldoherty@umd.edu). She will put you in touch with the undergraduate director in Classics.

Advising

Departmental advising is mandatory for all majors every semester and is recommended for those seeking minors.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The major culminates in a Capstone Course, in which students develop and present research which has grown out of their work in the field. Majors are encouraged to participate in undergraduate research conferences locally and nationally. The Department enables students to become involved in summer research opportunities and encourages all majors to seek internships.

Fieldwork Opportunities

Classics students have the opportunity to participate in summer archaeological fieldwork through our department and others in the university. Students may also pursue an interdisciplinary minor in archaeology. Contact Prof. Jorge Bravo (jbravo@umd.edu) or Prof. Lillian Doherty (LDoherty@umd.edu) for further information.

Internships

All Classics majors are encouraged to seek internships and there are many opportunities to do so in the Washington area.

Student Societies and Professional Organizations

Eta Sigma Phi is the national undergraduate Honor Society in Classics founded in 1914 at the University of Chicago. The University of Maryland's chapter, Zeta Nu, was established in 1994. Students are invited to join in the spring semester. To qualify, a student must be registered in a 3xx- or 4xx-level Greek or Latin course, must have at least a "B+" average in all language courses, and an overall GPA of "B" or better.

Students can submit abstracts for papers to be presented at regional and national Classics conferences. They can also join the Society for Classical Studies, which is the national classics professional organization, and the Classical Association of the Atlantic States, which is our regional classical organization.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The Classics Department awards a number of special scholarships and awards, some reserved for Classics majors and others awarded to them in preference.

For Classics majors only: The Avery Prize is awarded annually to a Latin student of special merit and the Hubbe Prize to a Greek student of special merit. The Mildred Steyer Undergraduate Scholarship is awarded to an outstanding major in Classics. The Odyssey scholarships support students who study abroad and other student needs. To honor the memory of Sylvia Gerber, who taught Latin for many years in the Washington, DC public schools, her son Louis has provided the department with funding to support the training of Latin teachers and Latin pedagogical studies, including an undergraduate award for an aspiring Latin teacher.

Thanks to a generous grant from the National Italian American Foundation, the department now offers a number of full or partial scholarships for its winter term and early summer study abroad programs in Italy. These scholarships are awarded by preference to students majoring in Classics and related fields. Summer scholarship money is also available through this grant for student research on the influence of ancient Roman culture in America.

Awards and Recognition

Outstanding students in Greek and Latin are invited to join Eta Sigma Phi, the national undergraduate Honor Society in Classics (see Student Societies and Professional Organizations above).

The department also annually awards the Avery Prize for excellence in Latin, the Hubbe Prize for excellence in Greek, and the Steyer and Gerber Scholarships (see Scholarships and Financial Assistance above).

Communication (COMM)

College of Arts and Humanities
2130 Skinner Building, 301-405-6519
www.comm.umd.edu
commadvising@umd.edu
Chair: S. Parry-Giles
Director: L. Waks
Professors: S. Parry-Giles, T. Parry-Giles, A. Wolvin
Associate Professors: L. Aldoory, D. Hample, S. Khamis, B. Liu, K. Maddux, X. Nan, D. Pfister
Assistant Professors: L. Anderson, N. Joyce, A. Seate, E. Sommerfeldt, C. Steele, C. Woods, M. Yang
Lecturers: S. Bae, M. Cohen, R. Coleman, L. Edelstein, L. Gordon, J. Gowin, P. Grant, J. Hoffman, S. Hubbard, M. Kaufer (Lecturer), K. Lamb, A. Nixon, J. Olson, E. Pombo Lopez-Barron, C. Pope (Lecturer), S. Rubin, R. Schwartz, S. Simon, C. Swift, J. Tenney, J. Vandenbosch, R. Winkler

Affiliate Professors: J. Fahnestock (ENGL), M. Gelfand (PSYC), A. Kruglanski (PSYC), Y. Peri (Prof & Dir), D. Rosenfelt (WMST)
Affiliate Associate Professors: S. McDaniel (KNES)
Professors Emeriti: E. Fink, R. Gaines, J. Grunig, L. Grunig, J. Klumpp
Visiting Faculty: K. Kendall

The Major

Communication takes as its subject matter the history, processes, and effects of human communication through speech and its extensions. The departmental curriculum is designed to provide a liberal education in the arts and sciences of human communication as well as preparation for career opportunities in business, government, education, law, and related fields. Students pursue academic programs that emphasize many disciplinary areas, including intercultural communication, political communication, public relations, negotiation and conflict management, cognition and persuasion, rhetorical theory, risk communication, history of rhetoric, and criticism of public discourse. Departmental advising is mandatory for new majors, second semester sophomores, and seniors.

Program Learning Outcomes

Upon completion of the degree program in Communication, students should be able to demonstrate the following knowledge and skills:

1. An ability to distinguish among a variety of theoretical approaches in the communication discipline and use them appropriately and effectively in academic and professional work.

2. An ability to conduct research and write research reports employing social scientific and/or humanistic approaches in the communication discipline.

3. An ability to argue clearly and effectively in a speech.

Academic Programs and Departmental Facilities

The Center for Political Communication and Civic Leadership unites research, education, and public engagement to foster democratic communication by a diverse people. See: www.comm.center.umd.edu.

The Center for Health and Risk Communication (CHRC) advances dialogue and understanding about communication's role in controlling and preventing risk, how publics perceive risk communication, and about the political, economic, and social contexts for risk communication. Scholars associated with the CHRC examine health, food safety, security, and environmental risks. See: www.healthriskcenter.umd.edu.

The Department's Oral Communication Center is designed to provide one-on-one tutoring and instructional support to further students' oral communication skills and confidence. The Oral

Communication Center is equipped with cameras and recording equipment to tape speeches and presentations for practice and critique.

Admission to the Major

First-time Freshman

All first-time freshmen who designate Communication as a major prior to the end of the final exam period of their first semester will be admitted directly to the program. They must sign a Memorandum of Understanding that states that they understand that by the semester in which they attain 45 University of Maryland credits (excluding AP), they must meet the following Gateway requirements:

a. Complete one of the following courses with a grade of "C-" or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, STAT100, or equivalent.

b. Complete COMM107, COMM 200, or COMM230 with a grade of "C-" or better

c. Complete COMM250 with a grade of "C-" or better and

d. A GPA of 2.0 or better

Students may repeat only one of the Gateway requirements and that requirement may be repeated only once in their attempt to meet the requirements. Students who fail to meet the Gateway requirements by the semester in which they attain 45 credits will be dismissed from the program and cannot reapply.

Transfer Students

Internal and external transfer students who meet the Gateway requirements specified above must also have a cumulative GPA of 2.70 in all college-level coursework to apply to the program.

Appeals

All students may appeal admission decisions. Students directly admitted as freshmen, who are dismissed because of failure to meet Gateway requirements or a failure to be in good academic standing at 45 credits, may appeal directly to the Undergraduate Director in the Department of Communication. All other students who are denied admission may appeal to the University's Office of Undergraduate Admissions.

Requirements for the Major

The course of study for a Communication major must satisfy all of the following requirements:

Credits

COMM107	Oral Communication: Principles and Practices, **OR**	3
COMM200	Critical Thinking and Speaking, **OR**	3
COMM230	Argumentation and Debate	3
COMM250	Introduction to Communication Inquiry	3
COMM400	Research Methods in Communication	3
COMM401	Interpreting Strategic Discourse	3
	Completion of one of the following tracks:	
	Social Influence Track	
COMM402	Communication Theory and Process	3
	Five from:	15
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	
COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
COMM	COMM Elective	3
COMM 3xx or 4xx-level	3xx or 4xx-Level COMM Elective	3
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability	
	(or an equivalent course - see advisor)	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse	
	(or an equivalent course - see advisor)	
COURSESXX	Courses related to Social Influence in one department other than COMM	9
	Communication Studies Track	
COMM402	Communication Theory and Process	3
	One from:	3
COMM420	Theories of Group Discussion	
COMM424	Communication in Complex Organizations	
COMM425	Negotiation and Conflict Management	

COMM426	Conflict Management	
COMM435	Theories of Interpersonal Communication	
COMM470	Listening	
COMM475	Persuasion	
COMM477	Discourse Analysis	
COMM482	Intercultural Communications	
	One from:	3
COMM330	Argumentation and Public Policy	
COMM360	The Rhetoric of Black America	
COMM450	Ancient and Medieval Rhetorical Theory	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	3
COMM3xx or 4xx-level	3xx or 4xx-Level COMM Electives	12
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability (or an equivalent course - see advisor)	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse or an equivalent course - see advisor	
COURSESXX	Courses related to Communication Studies in one department other than COMM	9

Public Relations Track

The requirements below are effective for incoming Fall 2015 freshmen and transfers admitted to Communication.

JOUR181	Grammar for Journalists	1
COMM331	News Writing and Reporting for Public Relations	3
COMM332	News Editing for Public Relations	3
COMM201	Introduction to Public Relations	3
COMM351	Public Relations Techniques	3
COMM353	New Media Writing for Public Relations	3

COMM386	Experiential Learning*	3-6
	** only 3 credits apply to major*	
COMM483	Senior Seminar in Public Relations	3
COMM3xx or 4xx-level	3xx or 4xx-Level COMM Electives	6
	One Statistical Analysis from:	3-4
PSYC200	Statistical Methods in Psychology	
SOCY201	Introductory Statistics for Sociology	4
BMGT230	Business Statistics	
EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability	
	(or an equivalent course - see advisor)	
COURSESXX	Courses related to Public Relations in one department other than COMM or JOUR	9

Rhetoric and Political Culture Track

COMM450	Ancient and Medieval Rhetorical Theory	3
	Five from:	15
COMM330	Argumentation and Public Policy	
COMM360	The Rhetoric of Black America	
COMM451	Renaissance & Modern Rhetoric Theory	
COMM453	The Power of Discourse in American Life	
COMM455	Speechwriting	
COMM460	Public Life in American Communities, 1634-1900	
COMM461	Voices of Public Leadership in the Twentieth Century	
COMM469	The Discourse of Social Movements	
COMM471	Public Communication Campaigns	
COMM476	Language, Communication, and Action	
COMM	COMM Elective	3
COMM3xx or 4xx-level	3xx or 4xx-Level COMM Elective	3
	One Critical Analysis of Discourse from:	3
AMST432	Literature and American Society	
CMLT488	Genres	
ENGL453	Literary Theory	
JWST263	Hebrew Bible: Poetry and Prophecy	
PHIL233	Philosophy in Literature	
	One Structural Analysis of Language from:	3
LING200	Introductory Linguistics	
HESP120	Introduction to Linguistics	
ANTH380	Culture and Discourse	
	or an equivalent course - see advisor	
COURSESXX	Courses related to Rhetoric and Political Culture in one department other than COMM	9

Notes:

- Because the Department's curriculum changes over time, the Department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.
- Courses required for the Communication major, but taken outside COMM, may be used to satisfy general education requirements.
- Only 3 credits of COMM386 may apply toward the major.
- No course grade below the grade of "C-" may count toward the major.
- An overall GPA of 2.0 in the major is required for graduation.

Requirements for the Minor

Department of Communication and Department of English
http://rhetoric.umd.edu

Rhetoric is the theory of persuasive communication, both written and spoken. The minor in Rhetoric has been designed for students who want to know the principles and skills of practical persuasion in its varied contexts. The program will be of value for all students wishing to improve their writing and speaking skills and especially useful for those students who plan careers in business, management, law, government, and education. The minor in Rhetoric is an interdisciplinary program offered through the cooperation of the Department of English and the Department of Communication.

Fifteen semester hours of coursework are required:

A. Six semester hours from the course list in Rhetorical Theory and Analysis of Discourse
B. Six semester hours from the course list in Writing and Speaking Skills
C. Three semester hours in electives from either section of the Rhetoric Course List
D. At least nine of the fifteen semester hours must at the 3xx-level or higher (including at least six hours at the University of Maryland, College Park)
E. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
F. No more than six of the fifteen semester hours may count toward the student's major and supporting courses
G. At least 3 semester hours must be taken in the English Department, and at least 3 semester hours must be taken from the Department of Communication
H. No course used to satisfy a Fundamental Studies requirement may count toward the minor
I. No course used to satisfy the requirements of another minor may count toward the rhetoric minor
J. No course grade below the grade of "C-" may count toward the minor
K. An overall GPA of 2.0 in the minor is required for graduation

Entering the Minor:

The College of Arts and Humanities has established a maximum enrollment in the rhetoric minor. Students wishing to pursue the minor should check the Arts and Humanities minor website: www.arhu.umd.edu/undergraduate/academics/minors, or the Rhetoric Minor website: http://rhetoric.umd.edu, for the current status of minor admissions.

When enrollment in the minor is open, students should review the requirements above, make tentative selections of courses to satisfy these requirements, and meet with one of the advisors below. Students will officially declare the minor in rhetoric during this advising session. The earliest possible advising meeting is recommended, however, because, under university rules for minors, no student may declare the minor during their final year of coursework.

Current course lists for the minor in Rhetoric can be found at: http://rhetoric.umd.edu.

Minor Advisors:

Michelle Murray Yang
Department of Communication
2114 Skinner Building
mlmurray@umd.edu
301-405-0873

Michael Israel
Department of English
3126 Tawes Hall
israel@umd.edu
301-405-2816

Students are encouraged to communicate with a Rhetoric Minor advisor at least once a semester to ensure that all courses being applied to the minor are eligible, and that all of the requirements for the minor are being fulfilled. For a senior-year audit of your minor requirements, or answers to other advising questions, please contact the advisor with whom you worked when adding the minor.

Advising

Advising is available throughout the year in 2101D Skinner Building. Students should check Testudo (http://testudo.umd.edu/) for their registration date and for any mandatory advising blocks. Advising questions can be sent to commadvising@umd.edu or you may call 301-405-0862.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

Research experiences include assisting on faculty research projects, participating in special team research projects, and working with the department's Center for Political Communication and Civic Leadership and/or the Center for Health and Risk Communication.

Internships

The department's internship program helps communication majors gain professional experience, build a professional portfolio, and take the first steps toward a career. The department structures its internship program around a course, COMM386: *Experiential Learning*, which is offered each term.

Honors Program

The Honors Program provides students with an opportunity for intensive study of Communication. The program provides participants with opportunities to deepen their understanding of the discipline through supervised research with faculty, graduate-level coursework, and involvement in the intellectual life of the department.

Students interested in the Honors Program apply for the program, ordinarily during the second semester of the sophomore year or the first semester of the junior year. The application is filed with the Undergraduate Director. Students should have the following qualifications:

- An overall GPA of 3.3 or above.
- Completion of nine semester hours in Communication including COMM250.
- GPA of 3.5 or above in Communication.

Student Societies and Professional Organizations

Social and academic activities are available to students by participating in the following student organizations: the Undergraduate Communication Association, the Lambda Pi Eta Honor Society, and the Maryland chapter of the Public Relations Student Society of America.

Scholarships and Financial Assistance

The department offers the June Dowler Buteau Scholarship to a freshman student who exhibits academic excellence.

Comparative Literature Program (CMLT)

College of Arts and Humanities
2116 Tawes Hall, 301-405-3839
www.cmlt.umd.edu
Chair: A. Bailey
Director: G. Passannante
Professors: M. Collins (English), V. Orlando (French), S. Ray (English), B. Richardson (English), O. Wang (English)
Associate Professors: H. Baer (German), R. Bauer (English), C. Eades (French), O. Gaycken (English), S. Jelen (English and Jewish Studies), R. Long (Spanish), Z. Nunes (English), R. Ontiveros (English), E. Papazian (Russian), G. Passannante (English), K. Robertson (English),

V. Valiavitcharska (English), E. Zakim (Jewish Studies)
Assistant Professors: L. Arsenjuk (Film), S. Balachandran Orihuela (English), M. Resmini (Film and Italian)
Lecturers: E. Robinson (English)
Affiliate Professors: W. Cohen (English), L. Doherty (Classics), J. Hallett (Classics), R. Igel (Spanish), F. Keshavarz-Karamustafa (Arabic Studies), J. Levinson (Philosophy)
Affiliate Associate Professors: F. Carpenter (Theater), A. Frisch (French), M. Mason (East Asian Studies)
Affiliate Assistant Professors: V. Anishchenkova (Arabic Studies), F. Barrenechea (Classics), A. Schonebaum (Chinese)
Professors Emeriti: A. Berlin, J. Donawerth, R. Harrison, L. Kauffman, C. Peterson

Program Objectives

Courses in Comparative Literature offer students the opportunity to engage in literary and film studies outside of a single national or linguistic range. Students with expertise in/or interest in multiple languages and cultures may take courses that help them to contextualize different literary and artistic traditions within a global rubric. Courses on Literature and Global Change, World Literature by Women, Black Diaspora, Literature of the Americas, and Film Art in a Global Society, among other courses, cultivate a sense of the transnational nature of cultural production and consumption. Knowledge of a language other than English is not required.

Computer Engineering (ENCP)

A. James Clark School of Engineering

2426 A.V. Williams Building, 301-405-3685
www.ece.umd.edu
eceadvise@umd.edu
Chair: R. Chellappa (Distinguished Scholar Teacher; Minta Martin Prof and Chair)
Professors: E. Abed, T. Antonsen, J. Baras, A. Barg, R. Barua, S. Bhattacharyya, G. Blankenship (Associate Chair, External Relations), M. Dagenais, C. Davis (Distinguished Scholar Teacher; Minta Martin Prof), A. Ephremides (Distinguished University Professor), C. Espy-Wilson (Distinguished Scholar Teacher), R. Ghodssi (Distinguished Scholar Teacher), V. Gligor (Res Prof), J. Goldhar, N. Goldsman, R. Gomez (Associate Chair, Undergrad Education), A. Iliadis, J. JaJa, B. Jacob, J. Kim (Prof Of Practice), P. Krishnaprasad, R. La, W. Lawson, W. Levine (Res Prof), K. Liu (Distinguished Scholar Teacher), A. Makowski, S. Marcus (Distinguished Scholar Teacher), I. Mayergoyz (Distinguished Scholar Teacher), H. Milchberg (Distinguished Scholar Teacher), T. Murphy, K. Nakajima, P. Narayan, R. Newcomb, P. O'Shea (Distinguished Scholar Teacher), Y. Oruc, E. Ott (Distinguished University Professor), G. Qu, S. Shamma, M. Shayman (Associate Dean, Graduate School), J. Simon, P. Sprangle, A. Srivastava (Interim Associate Chair, Graduate Education), A. Tits, S. Ulukus, T. Venkatesan (Res Prof), U. Vishkin, M. Vorontsov (Res Prof), M. Wu (Distinguished Scholar Teacher)
Associate Professors: P. Abshire, P. Dowd (Res Assoc Prof), M. Franklin, M. Hafezi, T. Horiuchi, A. Khaligh, N. Martins, J. Munday, A. Papamarcou, E. Waks, D. Yeung (Director of Computer Engineering)
Assistant Professors: B. Babadi (Asst Prof, Aff Asst Prof), D. Dachman-Soled (Asst Prof, Aff

Asst Prof), T. Dumitras (Asst Prof, Aff Asst Prof), C. Papamanthou (Asst Prof, Aff Asst Prof), M. Rotkowitz
Lecturers: D. Bowen (Lecturer), W. Hawkins, P. McAvoy (Res Assoc, Lecturer), N. Mogul (Lecturer), S. Picozzi (Lecturer), D. Romero (Lecturer), C. Walden (Lecturer), J. Wu (Lecturer)
Affiliate Professors: A. Agrawala, J. Aloimonos, S. Anlage, S. Bhattacharjee, L. Davis, M. Fu, A. Harris, J. Hollingsworth, D. Lathrop, D. O'Leary, R. Phaneuf, G. Rubloff, E. Smela, F. Wellstood
Affiliate Associate Professors: I. Appelbaum, M. Cukier, R. Duraiswami, R. Kishek
Affiliate Assistant Professors: Y. Chen
Professors Emeriti: D. Barbe, L. Davisson, N. De Claris, F. Emad, N. Farvardin, V. Granatstein, R. Harger, P. Ho, C. Lee, P. Ligomenides, J. Melngailis, J. Orloff, M. Peckerar, J. Pugsley, H. Rabin, M. Reiser, M. Rhee, C. Silio, C. Striffler, L. Taylor, S. Tretter, K. Zaki

The Major

The computer engineering major combines the strengths of both the Department of Electrical and Computer Engineering and the Department of Computer Science to prepare students for careers in the computer industry. The program encompasses the study of hardware, software, and systems questions that arise in the design, development, and application of computers and embedded systems. Specifically, computer engineering students will have a knowledge of hardware systems (electrical networks, electronics, and VLSI); a knowledge of software systems (algorithms, data structures, and operating systems); and a knowledge of how these two domains interact (digital logic, signal and system theory, computer architectural and performance analysis). Computer Engineering students will learn about everything that goes into digital and computing systems, from solid state physics to CMOS VLSI design, to computer architecture to programming, and from operating systems to compiler and language theory. Courses offered by this department may be found under the following acronym: ENEE and CMSC.

The Bachelor of Science degree in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Program Objectives

Broadly stated, the **Program Educational Objectives (PEOs)** for the undergraduate major in computer engineering pertain to the accomplishments and performance of our students 3-5 years after graduation. These objectives are determined in consultation with the various constituencies of the computer engineering program and agreed upon and approved by a consensus of the faculty.

1. Achieve a leadership position in a reputable industry or government institution.

2. Achieve a graduate degree in a highly ranked academic program.

3. Become an innovator and creative entrepreneur.

Program Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Computer Engineering students are expected to possess by the time they graduate so the PEOs can be accomplished. The SLOs are:

- **(a)** An ability to apply knowledge of mathematics, science, and engineering
- **(b)** An ability to design and conduct experiments, as well as analyze and interpret data
- **(c)** An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- **(d)** An ability to function on multi-disciplinary teams
- **(e)** An ability to identify, formulate, and solve engineering problems
- **(f)** An understanding of professional and ethical responsibility
- **(g)** An ability to communicate effectively
- **(h)** The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- **(i)** A recognition of the need for, and an ability to engage in, life-long learning
- **(j)** A knowledge of contemporary issues
- **(k)** An ability to use modern engineering tools necessary for engineering practice.

Admission to the Major

Admission requirements for the Computer Engineering major are determined by the A. James Clark School of Engineering. See Chapter 6 for the Clark School admission requirements. For details on the University's requirements and general admission procedures, please see Chapter 1.

Requirements for the Major

As in all engineering degrees, the student starts out with a core curriculum in mathematics and basic science. Subsequent years of study involve courses covering a balanced mixture of hardware, software, hardware-software trade-offs, and basic modeling techniques used to represent the computing process. Courses covering algorithms, data structures, digital systems, computer organization and architecture, software and hardware design and testing, operating

systems, and programming languages will be included. Elective courses must include electrical engineering and computer science courses and technical courses outside the departments. ***Students must earn a grade of "C-" or higher in all engineering, mathematics, and science courses as well as the prerequisites for these courses.*** A sample program is shown below.

	Freshman Year	**Credits First Sem**	**Credits Second Sem**
	General Education**	3	3
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
MATH140/141	Calculus I / Calculus II	4	4
CMSC132*	Object Oriented Programming II		4
ENES100	Intro. to Engineering Design	3	
	Total Credits	**13**	**14**
	Sophomore Year++		
	General Education**		3
MATH246	Differential Equations		3
CMSC216	Introduction to Computer Systems	4	
CMSC250	Discrete Structure	4	
CMSC330	Organization of Programming Languages		3
PHYS260/261	General Physics II with Lab	4	
ENEE222	Elements of Discrete Signal Analysis		4
ENEE200**	Social & Ethical Dimensions of ECE Technology	3	
ENEE205	Electric Circuits		4
ENEE245	Fund. Digital Circuits & Systems Lab	2	
	Total Credits	**17**	**17**
	Junior Year		
	General Education**	3	
CMSC351	Algorithms		3
CMSC412	Operating Systems		4
ENEE303	Analog and Digital Electronics	3	
ENEE307	Electronics Circuits Design Lab	2	
ENEE322	Signal and System Theory	3	
ENEE324	Engineering Probability		3
ENEE350	Computer Organization	3	
ENEE446	Computer Design		3
	Total Credits	**14**	**13**

	Senior Year		
	General Education**	3	3
ELECTIVE	Computer Engineering Technical Electives	12	10
ENGL393	Technical Writing		3
	Total Credits	**15**	**16**

++ Effective with the Fall 2010 freshmen admit class, students will be required to follow the new curriculum above. Students enrolled prior to Fall 2010 or students enrolled in parallel programs at other 2 and 4 year institutions should follow the old requirements. However, records will be reviewed when necessary on an individual basis during the phase in/out period, and adjustments made in degree requirements.
* Students may need to take CMSC131, Object Oriented Programming I, or the computer science exemption exam before taking CMSC132.
** Note: Please see www.4yearplans.umd.edu

Technical Elective Requirements

Effective Spring 2010, all BSCP graduates must distribute their 22 credits of technical electives among the following course categories:

		Credits
Category A	Mathematics and Basic Science Electives	minimum of 6
Category B	Computer Science Theory and Applications	minimum of 3
Category C	Electrical Engineering Theory and Applications	minimum of 3
Category D	Advanced Laboratory	minimum of 2
Category E	Capstone Design	minimum of 3
Category F	General Technical Electives	minimum of 3

Please read carefully, and make a note of the following special cases and other items:

1. General Technical Electives. They may be any upper-level course (300 level or higher) from the math, engineering, and basic science disciplines whose courses start with the following prefixes and who do not appear on the list of unacceptable courses available from the Undergraduate Studies Office: AMSC, BCHM, BIOE, BSCI, CHEM, CMSC, ENAE, ENCE, ENCH, ENEE, ENES, ENFP, ENMA, ENME, ENNU, ENRE, MATH, PHYS, and STAT. Students may use upper level course (300 level or higher) whose prefix is not given in the list above, assuming they received approval to use such courses and the following conditions are met: (i) a student selects two or more such courses which are closely related by a theme and (ii) the student demonstrates how these courses complement their professional goals. The most up-to-date list of approved and unacceptable courses will always be available from the Undergraduate Studies Office and on the ECE website.

2. Two credits of ENEE499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject

to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE499 credits that may be applied towards EE technical elective requirements if five.

3. Additional Capstone Design courses can be used as substitutes for the required Electrical Engineering Theory and Applications course, and/or the required Advanced Laboratory course, provided one of the following is completed: ENEE408A, 408B or 408C.

4. If you have any questions on how these requirements affect your current selection of technical electives, please contact an advisor.

Advising

All ECE students have mandatory advising every single semester, provided by the professional advising staff of the ECE Undergraduate Studies Office. Departmental permission is required in order for students to register and for all courses in the major. The Department's Undergraduate Studies Office (2426 A.V. Williams Building, 301-405-3685) is the primary point of contact for undergraduates with advising questions and detailed curriculum requirements, registration information, and advising and mentoring procedures can be found on the ECE Undergraduate Advising website: http://www.ece.umd.edu/undergrad/advising.

Undergraduate Research Experiences

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human- computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force. Information on participating in undergraduate research can be found at http://www.ece.umd.edu/undergrad/courses/400-level/enee499.

The ECE department also offers unique summer research programs. The Maryland Engineering Research Internship Team program offers research opportunities for top undergraduates from across the country interested in using computer engineering skills and tools to address important biosystems applications. The Transportation Electrification (http://reu.ece.umd.edu/)program offers research opportunities for students interested in sustainable transportation systems, particularly in power electronics, energy storage (battery, ultracapacitor and fuel cell), optimization and mathematical modeling of grid-integrated vehicles, and sustainable transportation.

Internships

Information on internships can be found at www.coop.eng.umd.edu. Other internships are advertised through the ECE Department's Office of External Relations and Office of Undergraduate Studies.

Co-op Programs

Participation in a Cooperative Education Program or internship with private industry or a government agency is strongly encouraged. See the A. James Clark School of Engineering catalog entry for details.

Honors Program

The Electrical and Computer Engineering Honors Program (www.ece.umd.edu/undergrad/honors) is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. Please visit the ECE Honors website (www.ece.umd.edu/undergrad/honors) for program course requirements. Students completing all program requirements with a "B" average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma. Students with the necessary academic qualifications are invited to apply to the program, typically after the completion of their sophomore year.

Student Societies and Professional Organizations

The ECE Department has an active student chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found on their website (http://umd.orgsync.com/org/ieee/home). Equally active is the Gamma Xi chapter of Eta Kappa Nu honor society which is dedicated to recognizing excellence in electrical and computer engineering. Information on eligibility can be obtained by visiting their website (http://ece.umd.edu/hkn/).

Scholarships and Financial Assistance

Several scholarships are administered through the department and many others through the Clark School of Engineering. To be considered for these awards, students must submit an application by May 31st of each year for the following academic year. For more information visit: www.ursp.umd.edu/scholarships/index.html.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Department of Electrical and Computer Engineering offers the following awards: 1. Outstanding academic performance award presented to a junior for academic excellence; 2. Service Award to the graduating senior who has shown a commitment of service to fellow students; and 3. Chair's Award for outstanding academic performance to a graduating senior.

Job Opportunities

Computer engineers were primarily responsible for the recent revolutions in the music, telecommunications and medical device industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics, microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

Computer Science (CMSC)

College of Computer, Mathematical and Physical Sciences
1119 A.V. Williams Building, 301-405-2672
www.cs.umd.edu
ugrad@cs.umd.edu
Chair: S. Khuller
Professors: A. Agrawala, J. Aloimonos, B. Bederson, S. Bhattacharjee, W. Cleaveland, L. Davis, A. Deshpande, R. Duraiswami, H. Elman, J. Foster (Assoc Chair), W. Gasarch, M. Hajiaghayi, M. Hicks, J. Hollingsworth, D. Jacobs, J. Katz, A. Memon, D. Mount, D. Nau, D. Perlis, M. Pop, A. Porter, J. Reggia, N. Roussopoulos, E. Ruppin, H. Samet (Distinguished University Professor), A. Shankar, B. Shneiderman (Distinguished University Professor), A. Srinivasan, V. Subrahmanian, A. Sussman (Assoc Chair), A. Varshney, M. Zwicker
Associate Professors: A. Childs, H. Corrada Bravo, H. Daume, P. Keleher, C. Kruskal, J. Purtilo, N. Spring
Assistant Professors: M. Carpuat, J. Dickerson, J. Froehlich, T. Goldstein, Z. Khan, D. Levin, M. Mazurek, D. Van Horn
Senior Lecturer: E. Golub, J. Plane
Lecturers: F. Emad, J. Filippou, L. Herman, M. Hugue, A. Mamat, N. Padua-Perez, T. Reinhardt, P. Sadeghian, V. Sazawal
Professors Emeriti: W. Arbaugh, V. Basili, B. Dorr, L. Kanal, R. Miller, J. Minker, D. O'Leary (Distinguished University Professor Emerita), W. Pugh, G. Stewart (Distinguished University Professor Emeritus), M. Zelkowitz

The Major

Computer science is the study of computers and computational systems: their application, design, development and theory. Principal areas within computer science include artificial

intelligence, computer systems, database systems, human factors, numerical analysis, programming languages, software engineering, and theories of computing. A computer scientist is concerned with problem solving. Problems range from abstract questions of what problems can be solved with computers to practical matters such design of computer systems which are easy for people to use. Computer scientists build computational models of systems including physical phenomena (weather forecasting), human behavior (expert systems, robotics), and computer systems themselves (performance evaluation). Such models often require extensive numeric or symbolic computation.

Admission to the Major

Students who are accepted to the university and list Computer Science as the preferred major will start directly in our program. Students who wish to add Computer Science as a major must attend a workshop. More details can be found at http://undergrad.cs.umd.edu/prospective-cs-students.

Placement in Courses

Much of the knowledge at the early stage of the degree program is cumulative. To ensure that transfer and new students start with the appropriate courses, the department offers exemption exams for CMSC131, 132, 216, and 250. Students who have had CS courses prior to starting at Maryland can visit http://undergrad.cs.umd.edu/exemption-exams for more information.

Requirements for the Major

Much of the knowledge at the early stage of the degree program is cumulative. To ensure that transfer students start with the appropriate courses, the department offers exemption exams for CMSC131, 132, 216, and 250. Students who have had CS courses prior to starting at Maryland should schedule and take
exemption exams.

A "C-" or better must be earned in all major requirements.

Required Lower Level Courses (Unless Exempt)

MATH140 (4) Calculus I
MATH141 (4) Calculus II
CMSC131 (4) Object-Oriented Programming I
CMSC132 (4) Object-Oriented Programming II
CMSC216 (4) Introduction to Computer Systems
CMSC250 (4) Discrete Structures
**Students may fulfill CMSC131, 132, 216 or 250 course requirements by passing proficiency exams before they start the sequence of classes.

Additional Required Courses

CMSC330 (3) Organization of Programming Languages
CMSC351 (3) Algorithms
STAT4xx (3) This course must have prerequisite of MATH141 or higher; cannot be cross-listed with CMSC
MATH/AMSC/STAT xxx (3/4) This course must have prerequisite of MATH141 or higher; cannot be cross-listed with CMSC

Upper Level Computer Science Courses

At the upper level, students take five (5) 400 level courses from at least three different areas with no more than two courses in a given area. An additional two (2) electives, totaling 6 credits, for the general computer science degree are also required. If students take more than two courses from an area, they will be counted as electives. Students can count one credit winter courses towards the elective requirement, as well as independent research or study with a faculty member, and other courses at the 300 or 400 level.

Area 1: Systems (No more than two courses not counting electives)
CMSC411 (3) Computer Systems Architecture
CMSC412 (4) Operating Systems
CMSC414 (3) Computer and Network Security
CMSC417 (3) Computer Networks

Area 2: Information Processing (No more than two courses not counting electives)
CMSC420 (3) Data Structures
CMSC421 (3) Introduction to Artificial Intelligence
CMSC422 (3) Machine Learning
CMSC423 (3) Bioinformatic Algorithms, Databases, and Tools
CMSC424 (3) Database Design
CMSC426 (3) Image Processing
CMSC427 (3) Computer Graphics

Area 3: Software Engineering and Programming Languages (No more than two courses not counting electives)
CMSC430 (3) Introduction to Compilers
CMSC433 (3) Programming Language Technologies and Paradigms
CMSC434 (3) Introduction to Human-Computer Interaction
CMSC435 (3) Software Engineering
CMSC436 (3) Hand Held Programming Devices

Area 4: Theory (No more than two courses not counting electives)
CMSC451 (3) Design and Analysis of Computer Algorithms
CMSC452 (3) Elementary Theory of Computation
CMSC456 (3) Cryptology

Area 5: Numerical Analysis (choose one)
CMSC460 (3) Computational Methods (Credit will only be given for CMSC460 or CMSC466)
CMSC466 (3) Introduction to Numerical Analysis (Credit will only be given for CMSC466 or CMSC460)

Upper Level Concentration Requirement

Students must also take at least 12 credits of 300-400 level courses from one discipline outside of CMSC. No course in or cross-listed with CMSC can be counted. An overall 2.0 average must be earned in these courses. Each course must be a minimum of 3 credits. Only 1 special topics or independent study course may be used.

Cybersecurity Specialization
Students looking to pursue the cybersecurity specialization are required to complete the lower level courses (MATH140, MATH141, CMSC131, CMSC132, CMSC216, CMSC250), the additional required courses (CMSC330, CMSC351, MATH/STATXXX and STAT4xx beyond MATH141), and the upper level concentration requirements as detailed above. The difference in the specialization is the upper level computer science courses.

Students are required to take:
CMSC412
CMSC414
CMSC417
CMSC433
CMSC456

Students must choose:
CMSC411 OR CMSC430 (may not take both to complete requirements)
and
CMSC420 OR CMSC451 (may not take both to complete requirements)

Data Science Specialization
Students looking to pursue the data science specialization are required to complete the lower level courses (MATH140, MATH141, CMSC131, CMSC132, CMSC216, CMSC250), the additional required courses (CMSC330, CMSC351, MATH/STATXXX beyond MATH141), and the upper level concentration requirements as detailed above. The difference in the specialization is the upper level computer science courses.

Students are required to take:
CMSC320
CMSC422
CMSC424
STAT400

Students must choose one course from:
CMSC402
CMSC420
CMSC421
CMSC423
CMSC425
CMSC426
CMSC427

Students must choose one course from:
CMSC451
CMSC460

Students must choose two courses from:
CMSC411
CMSC412
CMSC414
CMSC417
CMSC430
CMSC433
CMSC434
CMSC435

Requirements for the Minor

The purpose of the minor in Computer Science is not only to give students a strong foundation in, and understanding of, algorithmic reasoning, problem solving methods involving computers and computation, and a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study. The computer science minor may be earned by students not majoring in computer science and computer engineering. A grade of "C-" or better must be earned in all courses required for the minor. See http://undergrad.cs.umd.edu/cs-minor for detailed information. The award of a minor will be noted on the student's transcript at the time of graduation.

Advising

All advising for CS students is done in the Computer Science Department. All CS majors must attend an advising session each semester prior to registering for classes. Additional advising information is available at http://undergrad.cs.umd.edu/academic-advising.

Honors Program

Students looking for opportunities to enhance their computer science education are encouraged to participate in the Computer Science Undergraduate Honors Program. The program is open to students in the CS major who have earned a GPA of 3.5 in computer science courses and a GPA of 3.25 overall. Some of the benefits of the program include the following: (1) learning how to

conduct research, (2) working closely with faculty members, and (3) increasing preparedness for graduate school.

For more information about the honors program, please visit the CS Honors website: http://undergrad.cs.umd.edu/computer-science-honors

Scholarships and Financial Assistance

There are multiple endowed scholarships available to students majoring in computer science. Additional details can be found at http://undergrad.cs.umd.edu/scholarships.

Students may find employment as tutors, as undergraduate teaching assistants, or as members of the department's laboratory staff. Professors may also have funds to hire undergraduates to assist in research. Many students also participate in internship experiences, working in the computer industry during the summer after their sophomore and/or junior years.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Counseling, Higher Education and Special Education (CHSE)

Special Education (CHSE)

College of Education
3214 Benjamin, 301-405-6515/4
http://www.education.umd.edu/CHSE/SE_overview.html
Chair: R. Worthington (Prof & Chair)
Director: S. Mallory (Asst Clin Prof & Program Area Director)
Professors: P. Beckman, P. Burke, P. Leone, J. Lieber, D. Neubert
Associate Professors: S. De La Paz, F. Kohl, R. Silverman, A. Taboada Barber
Assistant Professors: K. Cummings, J. Wexler
Assistant Research Professor: G. Yakubova (Asst Rsch Prof)
Professors Emeriti: A. Egel, J. Hebeler, S. Moon, D. Speece

The Major

Special Education offers a rigorous undergraduate teacher preparation program that prepares teachers with the necessary skills to assess, plan, teach, and evaluate children and young adults with disabilities. The program is nationally ranked, recognized as one of the top preparation programs in the country, and focuses on students with high incidence disabilities (autism spectrum disorders, learning and developmental disabilities, behavior disorders, intellectual disabilities, ADHD/ADD, etc.) and low incidence disabilities (autism, physical disabilities, intellectual disabilities, etc.). Students who complete the program graduate with a Bachelor of Science in Special Education, which leads to special education teacher certification in the State

of Maryland and certification reciprocity in most states throughout the country. Special education coursework meets state, university, and college requirements and is designed to provide an understanding of human development, including the basic psychological and sociological principles of human behavior. There is an instructional focus on universal design of learning/assistive technology; academic, language, motor, and cognitive development; social and educational needs of individuals with disabilities; diagnostic and educational assessment; evidenced-based instructional procedures and materials; national standards and curriculum development; classroom and behavior management; effective communication and partnership with parents and families of children with disabilities; community resource planning; and local, state, and federal laws and policies concerning children and youth with disabilities. The program ends with a required two-semester internship during the senior year that focuses on the application of teaching skills. Courses offered in the special education program may be found under the acronym EDSP.

NOTE: Please contact an advisor in the Office of Student Services (1204 Benjamin) for additional information.

Program Learning Outcomes

1. Special Education teacher candidates have in-depth knowledge of the subject matter they teach as described in professional (Council for Exceptional Children), state (MSDE), and University standards.

2. Special Education teacher candidates practice evidence-based instruction and decision-making through the use of assessment as well as the critical interpretation of research and inquiry to improve educational practice. They accurately assess, plan, and analyze student learning, make appropriate modifications to instruction, monitor student learning, and have a positive effect on learning for all students.

3. Special Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (CEC), state (MSDE), and University standards.

4. Special Education teacher candidates competently integrate technology and universal design in learning in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in the *Maryland Teacher Technology Standards*.

Admission to the Major

Prior to formal acceptance as a special education major, undergraduates are required to enroll in a special education introductory course (EDSP210/470), which provides a survey of the history and current issues in special education. Upon successful completion of the introductory course and 45 semester hours of requirements, teacher candidates apply for formal admission to the

professional program by submitting an application with a statement of intent specifying their professional goals. To be accepted as a full special education major, teacher candidates must fulfill the College of Education requirements for admission to Teacher Education, as well as the following program requirements:

1. Completion of course work indicated below:
HIST200 or 201, STAT100, Lab Science, ENGL Literature, PSYC100, SOCY100 or 105, HESP202, MATH212, EDHD411, and EDSP210.

2. Admission is competitive beyond the minimum 2.75 grade point average required for consideration.

3. Submission of an application together with a statement of intent specifying the applicant's professional goals.

4. Submission of three letters of recommendation.

5. Completion of College of Education Foundational Competencies Acknowledgment Form.

Admittance will be based on a variety of criteria, including completion of the required courses, the grade point average, the applicant's experience with persons with disabilities, and the appropriateness and clarity of the professional goal statement. For more information, see the admission section of the College of Education entry.

Placement in Courses

The Special Education program includes both pre-professional and professional education course work. Before teacher candidates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program.

Requirements for the Major

Undergraduates who are interested in majoring in Special Education must consult a program advisor as early as possible after matriculation at the university since the curriculum requires an extensive and sequenced program of studies. Individuals accepted as Special Education majors take a two-semester sequence of foundation special education courses and practicum experiences during the third year (Semesters V and VI). These courses provide the teacher candidate with a solid foundation in theory and practice related to the education of all children with disabilities across a wide range of ages.

Teacher candidates work directly with children or youth with disabilities during each semester, leading up to the teaching internship during the last semester.

To be completed with a "B-" or better
EDSP210 Introduction to Special Education (UP) 3

To be completed with a "C-" or better

*PSYC100 Introduction to Psychology (HS or NS)	3
*SOCY100 or 105	3
*HIST200 (HS or HU) or 201 U.S. History (HS or HU and DVUP)	3
HESP202 Introduction to Hearing and Speech Science	3
*Physical or Biological Science with Lab (NL)	4
*STAT100 Statistics & Probability (AR) (MATH 111will NOT satisfy this requirement)	3
EDHD411(HS) or PSYC355	3
MATH212 Elements of Mathematics	3
*ENGL Literature (HU)	3
*EDPS301 Foundations of Education (HS) or *EDPS210 (HU) Historical & Philosophical Perspectives on Education	3

*May double count for GenEd and major requirement

PROFESSIONAL REQUIREMENTS

Professional Semester I (Fall Only)

EDSP411 Universal Design for Learning	3
EDSP413 Behavior and Classroom Management in Special Education	3
EDSP400 Instruction of Students with Severe Disabilities I	3
EDSP451 Instruction & Curriculum in Elementary/Middle Special Education	3
EDSP443 Language and Literacy Acquisition in Children with Disabilities	3

Professional Semester II (Spring Only)

EDSP403 Instruction of Students with Physical Disabilities	3
EDSP415 Assessment in Special Education	3
EDSP416 Reading and Writing Instruction in Special Education I (HU)	3
EDSP410 Instruction of Students with Severe Disabilities II	3
EDSP485 Assessment & Instruction in Mathematics in Special Education	3

Professional Semester III (Fall Only)

EDSP484 Reading & Writing Instruction in Special Education II	3
EDSP487 Family Partnerships in Special Education	3
EDSP404 Education of Students with Autism Spectrum Disorders	3
EDSP452 Internship I: Elementary/Middle Special Education (SP)	3

Professional Semester IV (Spring Only)

EDSP490 Teacher Candidate Research Seminar in Special Education	3
EDSP495 Internship II: Elementary/Middle Special Education	12

Other Requirements for the Major

A minimum overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies and attain qualifying scores for the State of Maryland on a Test of Basic Skills assessment . A Test of Basic Skills assessment is required for admission, and Praxis II Special Education is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a partner school or a professional development school (PDS).

Requirements for the Minor

NOTE: The minor in Special Education is under review. For further information, please contact the Office of Student Services, 1204 Benjamin Bldg, 301-405-2364 or ed-advising@umd.edu.

The minor in Special Education provides opportunities for undergraduates to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For individuals interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available.

- 18 credits are required for this minor
- Two courses (6 credits) may overlap with a student's major
- Individuals pursuing the minor must select one of three age-based specializations: Early Childhood, Elementary, or Secondary Special Education.
- The minor incorporates coursework to meet the *Maryland State Department of Education (MSDE) reading requirements* that are part of the special education teacher certification requirements.
- A cumulative 2.75 GPA and junior status (60 credits) is required for enrollment in all professional education courses (i.e., all courses required for the minor except EDSP 210/470).
- All courses for the minor must be passed with a grade of "C-" or better.
- No more than two courses (6 credits) may be taken at an institution other than the University of Maryland.

Core Courses required for the Minor:

EDSP210/470	Introduction to Special Education
EDSP413	Behavior & Classroom Management in Special Education
EDSP415	Assessment in Special Education
EDSP416	Reading & Writing Instruction in Special Education I

Additional Courses Required for Early Childhood Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP423	Assessment in Early Childhood Special Education

Additional Courses Required for Elementary Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP485	Assessment & Instruction in Mathematics in Special Education

Additional Courses Required for Secondary Special Education:

EDHD426 **or** EDCI463	Cognition & Motivation in Reading: Reading in Content Areas **or** Reading in the Secondary School
EDSP485	Assessment & Instruction in Mathematics in Special Education

Minor and M.Ed. Teacher Certification Program

For individuals interested in pursuing special education teacher certification, a one year M.Ed. program is available after completing the 18-hour minor in special education and an undergraduate degree. To be admitted to this M.Ed. Special Education program, program applicants must apply to the graduate school (www.gradschool.umd.edu) during their senior year and pass the Praxis CORE at scores established by the Maryland State Department of Education www.education.umd.edu/studentinfo/teacher_education/praxisinfo.html. All teacher candidates at the University of Maryland must pass **Praxis II** prior to the teaching internship.

For further information, please contact Office of Student Services, 1204 Benjamin Bldg, 301-405-2364 or ed-advising@umd.edu.

Advising

Advising is mandatory for all special education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2364).

Fieldwork Opportunities

Candidates participate in a number of early field experiences during their junior year. A two-semester internship is arranged for teacher candidates in their senior year. The internship and other field experiences allow teacher candidates to apply concepts and techniques presented in university-based courses in a field placement setting.

Internships

The yearlong, two-semester internship, which is the culminating experience in the teacher preparation program, takes place in a partner school or a Professional Development School (PDS) during the senior year of the program.

Student Societies and Professional Organizations

The Special Education program encourages student participation in extracurricular activities within and outside of the University. Opportunities include the Council for Exceptional Children. For more information, contact the Office of Student Services in 1204 Benjamin Building.

Scholarships and Financial Assistance

The Special Education Endowed Fund in honor of Jean R. Hebeler is devoted to supporting candidates preparing to work with individuals with disabilities. Awards are competitive. Applications are accepted in the spring semester for the following academic year.

In addition, the College of Education offers a number of scholarships. Please visit http://www.education.umd.edu/studentinfo/scholarships.html for more information. The Office of Student Financial Aid (OSFA) administers federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Special Education

Office of Student Services
1204 Benjamin Bldg, 301-405-2364
ed-advising@umd.edu
www.education.umd.edu/EDSP/

NOTE: The Minor in Special Education is under review. For further information, please contact the Office of Student Services, 1204 Benjamin Bldg, 301-405-2364 or ed-advising@umd.edu.

The minor in Special Education provides opportunities for undergraduates to enroll in a sequence of education courses to determine if working with students with disabilities is a viable career option. For individuals interested in pursuing this career option, a one-year M.Ed. program, leading to certification as a special educator, is also available.18 credits are required for this minor.

- Two courses (6 credits) may overlap with a student's major.
- Individuals pursuing the minor must select one of three age-based specializations: Early Childhood, Elementary, or Secondary Special Education.

- The minor incorporates coursework to meet the *Maryland State Department of Education (MSDE) reading requirements* that are part of the special education teacher certification requirements.
- A cumulative 2.75 GPA and junior status (60 credits) is required for enrollment in all professional education courses (i.e., all courses required for the minor except EDSP210/470).
- All courses for the minor must be passed with a grade of "C-" or better.
- No more than two courses (6 credits) may be taken at an institution other than the University of Maryland.

Core Courses required for the Minor:

EDSP210/470	Introduction to Special Education
EDSP413	Behavior & Classroom Management in Special Education
EDSP415	Assessment in Special Education
EDSP416	Reading & Writing Instruction in Special Education I

Additional Courses Required for Early Childhood Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP423	Assessment in Early Childhood Special Education

Additional Courses Required for Elementary Special Education:

EDHD425	Language Development & Reading Acquisition
EDSP485	Assessment & Instruction in Mathematics in Special Education

Additional Courses Required for Secondary Special Education:

EDHD426 **or** EDCI463	Cognition & Motivation in Reading: Reading in Content Areas **or** Reading in the Secondary School
EDSP485	Assessment & Instruction in Mathematics in Special Education

Minor and M.Ed. Teacher Certification Program

For individuals interested in pursuing special education teacher certification, a one year M.Ed. program is available after completing the 18-hour minor in special education and an undergraduate degree. To be admitted to this M.Ed. Special Education program, program applicants must apply to the graduate school (www.gradschool.umd.edu) during their senior year and pass the Praxis CORE test at scores established by the Maryland State Department of Education (http://www.education.umd.edu/studentinfo/teacher_education/praxisinfo.html). All teacher candidates at the University of Maryland must pass **Praxis II** prior to the teaching internship.

Leadership Studies

Counseling, Higher Education and Special Education (CHSE)

http://umddepartments.orgsync.com/org/leadershipstudies/
3214 Benjamin Building, 301-314-1347
leadershipstudies@umd.edu

Description

The Leadership Studies program promotes college student leadership development by educating undergraduate students *for* and *about* leadership in a complex world. The goal of the Minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. The Minor also encourages students to identify a working philosophy of leadership that can advance students' thinking around ethics, civic engagement, and the importance of working within diverse and multicultural environments. These areas are critical aspects of leadership that require faculty and students to build and critically evaluate existing theoretical, research-based, and practical knowledge of leadership. Students in the Minor can use their knowledge, skills, and competencies gained from this academic program to enhance their sense of self, engagement with others, and better identify their values in future aspirations. Core courses in the Minor are sequenced to meet increasingly complex sets of learning outcomes across cognitive, personal development, and group/organizational domains.

Eligibility

In order to apply for the Certificate or Minor in Leadership Studies, students must:

1. You have completed at least 30 credit hours of college credit
2. You are in good academic standing
3. You are enrolled in HESI 217 or have completed EDCP 217/HESI 217 with a C- or better.
4. You have completed no more than 9 credits of the Leadership Studies program coursework
5. You have more than one full academic year before you graduate

Application Procedures and Forms:

Applications will be made available as an online form, during select times each semester, for a period of two weeks. The application will ask eligible students to identify demographic information, a list of (on and off-campus) involvements (if any), and respond to three short-essay questions. Applicants must also provide a resume and an unofficial University transcript.

After the closing application date, applications will be reviewed and applicants will be notified within two to three weeks by email.

Selection Criteria:

- Demonstrates a commitment or experience in leadership, either in studying or practicing leadership
- Contributes to the diversity of students in the Minor
- Illustrates capacity to utilize leadership theories and skills
- Exhibits a commitment to intrapersonal and interpersonal growth and development through the study of leadership

Minor Completion Requirements

The CHSE Minor in Leadership Studies consists of **15 credit hours**. No more than six credits can also be applied to a student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. No course with an earned grade below "C-" may count towards the Minor.

Requirements for the Minor (15 total hours)*

- HESI217 - Introduction to Leadership (3 credits)
- HESI315 - Leadership in Groups and Organizations (3 credits)
- HESI318 - Applied Contextual Leadership OR HESI418 - Special Topics in Leadership (3 credits)
- HESI417 - Advanced Leadership Seminar (3 credits)
- ONE elective course, from our pre-approved elective list (total 3 credits)

Contact Leadership Studies at leadershipstudies@umd.edu with questions and interests in the Minor.

The Leadership Studies program is a partnership between the College of Education and the Adele H. Stamp Student Union, Center for Campus Life. More information is also listed at: http://umddepartments.orgsync.com/org/leadershipstudies/.

Criminology & Criminal Justice (CCJS)

College of Behavioral and Social Sciences
2220 LeFrak Hall, 301-405-4699
www.ccjs.umd.edu
Chair: J. Lynch (Prof & Chair)
Director: L. Brooks (Undergraduate Director)
Professors: D. Gottfredson, G. LaFree (Distinguished Scholar Teacher), J. Laub (Distinguished University Professor), J. McGloin, R. Paternoster (Distinguished Scholar Teacher), P. Reuter, L. Sherman (Distinguished University Professor), S. Simpson
Associate Professors: L. Dugan, B. Johnson (Graduate Director), E. Wish, M. Xie
Assistant Professors: D. Maimon (Honors Director), K. Nakamura, L. Porter, S. Tahamont
Lecturers: C. Fisher, R. Hamill, A. Lehman, J. Madoo, T. Mauriello, D. Mitchell, C. Roberts

White, D. Salem, K. Zafft
Professors Emeriti: C. Wellford

The Major

The mission of the Department of Criminal Justice & Criminology is to provide a supportive academic and professional environment for faculty and students. The Department promotes study and teaching concerning crime and delinquency and their prevention and control. The University of Maryland's Department of Criminology and Criminal Justice is a national and international leader in research and criminal justice education, and its Graduate Program is ranked number one in the field. Courses offered by this department may be found under the following acronym: CCJS. Both UMD and Shady Grove offer the CCJS Bachelor of Arts degree.

Program Learning Outcomes

Having completed the CCJS degree program, students should acquire the following knowledge and skills:

1. Students will demonstrate basic knowledge of major criminology and criminal justice content areas.
2. Students will demonstrate a basic knowledge of descriptive and inferential statistics appropriate to the social sciences.
3. Students will demonstrate competence in basic social science research methods.

Admission to the Major

In accordance with University policy, the Department of Criminology and Criminal Justice at UMD has been designated a Limited Enrollment Program (LEP). All first-time freshmen admits who request Criminology and Criminal Justice will be directly admitted into the major. Other first-time freshman that wish to declare Criminology and Criminal Justice as a major prior to the last day of classes of the first semester in residence will be allowed to do so. The LEP does not apply to the CCJS Shady Grove program.

In order to remain a Criminology and Criminal Justice major, newly admitted freshman will be required to complete the following gateway/entrance requirements on or before the end of the semester in which they attempt 45 University of Maryland credits:

a. Completion of CCJS100 with a grade of "C-" or higher
b. Completion of CCJS105 with a grade of "C-" or higher
c. Completion of MATH107 or STAT100 with a grade of "C-" or higher. A calculus class (MATH120 or MATH130, MATH140 with a grade of "C-" or higher may be substituted.
d. A minimum cumulative GPA of 2.00

All other students, including both internal and external transfer students, will not be admitted to the program until they have met the following requirements:

a. Completion of CCJS100 with a grade of "C-" or higher
b. Completion of CCJS105 with a grade of "C-" or higher
c. Completion of MATH107 or STAT100 with a grade of "C-" or higher. A calculus class (MATH120 or MATH130, MATH140) with a grade of "C-" or higher may be substituted.
d. A minimum cumulative GPA based on all previous college-level coursework of 2.50 or higher

Policies for Limited Enrollment Programs:

-Only one gateway or performance review course may be repeated to earn the required grade and that course may only be repeated once.

-When more than one course can satisfy a gateway requirement, taking a second course from the list will count as a repeat.

-Students may apply only once to an LEP. Students who are directly admitted and fail to meet the performance review criteria will be dismissed from the major and may not reapply.

-Students must maintain a minimum cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.

Any student denied admission or dismissed from the major may appeal. Dismissed students appeal directly to the Director of Undergraduate Studies in Criminology and Criminal Justice. Internal transfer students appeal to the Office of the Dean for Behavioral and Social Sciences. External transfer students appeal to the Office of Admissions.

Requirements for the Major

The requirements below are in effect for all students who matriculated into the UM system Fall 2015 or later and for students who are currently changing their major to CCJS. Older requirements for students who declared the major prior to Fall 2017 and matriculated into the UM system prior to Fall 2015 are listed at the end.

The CCJS major is comprised of 36 credit hours of coursework in the CCJS department and either MATH 107 (formerly MATH 111) or STAT 100. A calculus class (MATH 120, 130, or 140) with a grade of C- or higher may be substituted for MATH 107 or STAT 100.

Required CCJS Courses:
CCJS 100 - Introduction to Criminal Justice
CCJS 105 - Introduction to Criminology
CCJS 200 - Statistics for Criminology & Criminal Justice
CCJS 230 - Criminal Law in Action
CCJS 300 - Criminological and Criminal Justice Research Methods

2 CCJS Criminal Justice Courses
(Select two from the following three classes)
CCJS 340 - Policing
CCJS 345- Courts and Sentencing
CCJS 342- Corrections

1 CCJS Criminology/Theory Course
(Select one from the following three classes)
CCJS 450 - Advanced Juvenile Delinquency
CCJS 451 - Crime and Delinquency Prevention
CCJS 454 - Contemporary Criminological Theory

4 CCJS Courses of Choice
Two CCJS Courses of Choice must be at the 400 level
(Completed using one or a combination of the followings ways)

- Complete additional CCJS courses that are not required (i.e., CCJS 325, 360, 418)
- Complete 1 Independent Study for credit (max 3 credits)
- Complete 1 Internship for credit (max 3 credits)

Total CCJS Credits: 36 Credits

Additionally students must complete one of the following math courses for the CCJS LEP gateway requirements:
Choose one of the following:
MATH 107 - Introduction to Math Modeling and Probability (formerly MATH 111)
STAT 100 - Elementary Statistics and Probability
*A calculus class, MATH 120 (formerly MATH 220), 130 or 140, with a grade of C- or higher may be substituted

Total Credits for the CCJS Major: 39 Credits

Please keep the following information in mind:

- No grade lower than a C- may be used toward the major
- Students must achieve a combined grade point average of a 2.0 in the CCJS major

Older CCJS Major Requirements

Older CCJS major requirements are in effect for students who have declared the major prior to Fall 2017 and matriculated into the UM system prior to Fall 2015. Current students are no longer admitted under older CCJS major requirements.

The Criminology and Criminal Justice (CCJS) major is comprised of 33 credit hours of coursework in the CCJS department, either MATH 107 or STAT 100, and 18 credit hours of supporting sequence coursework from outside of the CCJS Department.

Required CCJS Courses:
CCJS 100 - Introduction to Criminal Justice
CCJS 105 - Introduction to Criminology
CCJS 200 - Statistics for Criminology & Criminal Justice
CCJS 230 - Criminal Law in Action

CCJS 300 - Criminological and Criminal Justice Research Methods
CCJS 340 - Policing
CCJS 350 - Juvenile Delinquency
CCJS 451, 452, 454 (Choose one)
451 - Crime and Delinquency Prevention
452 - Treatment of Criminals and Delinquents
454 - Contemporary Criminological Theory

3 CCJS Courses of Choice
(Completed using one or a combination of the followings ways)

- Complete additional CCJS courses that are not required (i.e., CCJS 325, 360, 418)
- Complete an Independent Study (CCJS 399)
- Complete an Internship (CCJS 359 & 398)

Total CCJS Credits: 33 Credits

Additionally students must complete one of the following math courses for the CCJS LEP gateway requirements:
Choose one of the following:
MATH 107- Introduction to Math Modeling and Probability (formerly MATH 111)
STAT 100 - Elementary Statistics and Probability
**A calculus class (MATH 120, 130 or 140) with a grade of C- or higher may be substituted*

Supporting Sequence
(Supporting Sequence courses must be taken off the approved Supporting Sequence list found at https://ccjs.umd.edu/sites/ccjs.umd.edu/files/supporting_sequence_website.pdf):
3 lower level courses from the approved supporting sequence list found at https://ccjs.umd.edu/sites/ccjs.umd.edu/files/supporting_sequence_website.pdf.
3 upper level courses from the approved supporting sequence list found at ccjs.umd.edu/sites/ccjs.umd.edu/files/supporting_sequence_website.pdf.
Total Supporting Sequence credits: 18 Credits

Total Credits for the CCJS Major: 54 Credits

Please keep the following information in mind:

- No grade lower than a C- may be used toward the major
- Students must achieve a combined grade point average of a 2.0 in supporting sequence courses
- A minimum of 9 hours of Supporting Sequence must be at the 300/400 level

Students must achieve a combined grade point average of a 2.0 in the CCJS major

Other Requirements for the Major

The CCJS Department enforces all prerequisites and does not oversubscribe students to courses that are closed.

Advising

All majors are strongly encouraged to see an advisor at least once each semester. Advising is available on both a walk-in and appointment basis between 9 am and 4 pm weekdays in 2201 Lefrak Hall. Students must complete all course prerequisites and obtain department permission from CCJS Advising to enroll in most CCJS classes. Call 301-405-4729 or email ccjsadvising@umd.edu.

Internships

Requirements for Internship Placements

The internship must be a learning experience involving work in a criminal justice or criminological setting. Interns are expected to gain valuable information which will add to their overall understanding of the field of criminology and criminal justice. Internship positions must center around gaining new material over the course of the semester and are expected to involve some degree of ongoing training/learning for the intern. Internship placements are subject to the approval of the Internship Director.

Internship Eligibility

Interns must meet the following criteria:

- Interns must be CCJS majors
- Interns must have completed a minimum of 56 credits at the time of application
- Interns must have a cumulative GPA of at least 2.5 at the time of application
- Interns must work 45 hours per credit over the course of the semester
- A maximum of 6 internship credits per semester and a total of 12 internship credits overall will be permitted
- Internship credit will not be approved for current or previously held jobs

Interns must register themselves for the internship prior to the end of the semester's schedule adjustment period. Obtaining Departmental approval for the internship does NOT register the student for the class. Additional information about internships can be picked up from the CCJS advising office in 2201 Lefrak Hall or online.

Honors Program

The Honors Program is a three-semester (9 required credit hours) sequence, which a student begins in the fall semester of his or her junior year. CCJS388H, the first course in the sequence,

will provide an in-depth understanding of various contemporary criminological issues and the production of criminological research. CCJS388H will only be offered in the fall semester. In the spring semester of the junior year, students will complete CCJS389H, where students will solidify their honors thesis topic and begin preliminary research. In the fall semester of the senior year, students will complete CCJS489H, a writing intensive course, during which the student will complete an honors thesis. At the end of the semester, each student must orally defend his or her honors thesis. Honors students may count their honors courses toward completion of the CCJS Course of Choice major curriculum requirement.

Student Societies and Professional Organizations

There are two Student Societies available for membership for CCJS majors: the Criminal Justice Student Association (CJSA) and Alpha Phi Sigma Honor Society (APS).

The Criminal Justice Student Association (CJSA) is dedicated to supplementing our members' academic experience by providing extracurricular opportunities to further explore critical issues involving criminology and criminal justice. Through a regular program of speakers, agency demonstrations, community service projects and career fairs, the CJSA provides students with valuable information for making decisions about career choices, further graduate level study, and law school. The CJSA provides students with opportunities for academic and social interaction, and access to criminology and criminal justice researchers, teachers, and practitioners representing a variety of government, academic and commercial corporate and non-profit organizations. All graduate and undergraduate students, regardless of major, are eligible for membership in the CJSA. CJSA meetings and programs are held at least monthly during the Fall and Spring semesters. CJSA does not assess membership dues or fees.

Alpha Phi Sigma (APS) is a National Criminal Justice Honor Society founded 1942 and membership is open to CCJS majors who have completed at least 40 total credits with at least 12 credits in CCJS courses. Undergraduate Applicants must have an overall GPA of at least a 3.2 and a major GPA of at least 3.4. Graduate student applicants must have a 3.4 overall GPA. Applicants must fill out and print the application available at http://www.alphaphisigma.org/resources.html. Choose Student Member Application (US chapters), submit an official or unofficial transcript, and a check (personal is fine) made out to Alpha Phi Sigma for $55 ($50 of which goes to the National fee and $5 goes to the local chapter). The CCJS degree is a Bachelor of Arts. The name of the local chapter is Omega Iota. Put the completed application, check, and transcript in Nicole Jackson's mailbox inside 2220 Lefrak Hall. Applications are processed once at the beginning of the Fall semester and once at the beginning of the Spring semester each year, and it generally takes a few months to get official acceptance. Ms. Jackson will notify you when your certificate and pin have been received.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Each semester the department selects the outstanding graduating senior for the Peter J. Lejins award.

DECISION, OPERATIONS AND INFORMATION TECHNOLOGIES (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: M. Fu, Y. Xu (Associate Chair)
Professors: R. Agarwal, M. Ball, Z. Chen, M. Fu, B. Golden, H. Lucas, S. Mithas, S. Raghavan, L. Raschid, D. Riley, T. Tunca, S. Viswanathan
Associate Professors: F. Alt, J. Bailey (Res Assoc Prof), W. Elmaghraby, G. Gao, A. Gopal, I. Hann, Y. Xu
Assistant Professors: S. Barnes (Asst Prof), P. Huang (Asst Prof), I. Ryzhov (Asst Prof)
Lecturers: P. Armstrong (Clin Prof), B. Corwin (Clin Prof), H. Ibrahim (Clin Prof), Z. Karake, R. Lazar, W. Lee, S. Lele, K. Ruhi (Clin Prof)
Professors Emeriti: L. Bodin

The Major

The Department of Decision, Operations, and Information Technologies offers two majors: Information Systems - Specialization: Business and Operations Management & Business Analytics.

Information Systems - Specialization: Business

The Business Area of Concentration in the Information Systems (IS) program prepares students to be effective planners, users, and managers of information technologies and systems in the current environment of the technology-enabled business firm. The IS major focuses on the system design and implementation skills including database and web design, analytical skills for both strategic planning of IT and performance evaluation, and the managerial plus organizational knowledge required to manage information systems and applications based on business and customer requirements. The major's core emphasizes the concepts of systems analysis and design, and the strategic use of information systems. In addition to a broad grounding in the key functional areas of marketing, operations, accounting, and finance, this major develops in-depth knowledge of information systems design and implementation, evaluation and planning of information technology investments, and managing dynamic technology projects.

Operations Management & Business Analytics

The Operations Management & Business Analytics major will provide students with the knowledge and skills necessary to successfully apply quantitative and statistically based modeling techniques to data and advantageously use the information in the data to drive decision making and improve performance in an era with massive amounts of data. Students with these skills are in high demand and career opportunities exist in the public and private sectors in a variety of industries including energy, finance, insurance, health care, logistics and marketing.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Information Systems - Specialization: Business

	Major Requirements	**Credits**
BMGT302	Designing Business Applications	3
	Note: CMSC132 Object-Oriented Programming II is approved substitute	
BMGT402	Database Systems	3
	Note: CMSC424 Database Design is approved substitute	
BMGT403	Systems Analysis and Design	3
BMGT407	Information Systems Projects	3
	Two courses from list 'A' or one course from 'A' and one course from list 'B':	6
	List A	
BMGT405	Business Telecommunications	
BMGT406	Electronic Commerce Application Development	
BMGT408	Selected Topics in Decision & Info. Tech. *(repeatable if content differs)*	
BMGT476	Applied Computer Models in Supply Chain Management	
BMGT485	Project Management	
BMGT404	Developing Applications for Decision Analytics	
	List B	
BMGT326	Accounting Systems	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT430	Linear Statistical Models in Business	
BMGT461	Entrepreneurship	
BMGT484	Electronic Marketing	
Total credits required		18

	Upper Level Economics Requirements	
	One of the following courses:	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total Economics Requirement	3

Note: Students who have completed either ECON325 or ECON326 can substitute these courses for ECON305 or ECON306 respectively.

Operations Management & Business Analytics

Students interested in graduate work in Operations Management & Business Analytics are strongly advised to complete MATH141, MATH240 and 241 in addition to the lower level courses required of all Smith School students.

The course requirements for the junior-senior curriculum concentration in Operations Management & Business Analytics are as follows:

		Credits
	Major Requirements	
BMGT332	Operations Research for Management Decisions	3
BMGT385	Operations Management	3
BMGT430	Linear Statistical Models in Business	3
BMGT431	Data Analytics	3
	One of the following courses (check prerequisites):	3
BMGT434	Introduction to Optimization	
BMGT435	Business Process Simulation	
	One of the following courses (check prerequisites):	3
BMGT434	Introduction to Optimization (if not selected in the above requirement)	
BMGT435	Business Process Simulation (if not selected in the above requirement)	
BMGT372	Introduction to Logistics and Supply Chain Management	
BMGT403	Systems Analysis and Design	
BMGT404	Developing Applications for Decision Analytics	
BMGT485	Project Management	
BMGT487	Six Sigma Innovation	
BMGT490H	The Total Quality Practicum *(Open only to QUEST students)*	
	Total BMGT	18

	Upper Level ECON Requirements	
	One of the following courses:	3
ECON305	Intermediate Macroeconomic Theory & Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total ECON	3
	Note: Students who have completed either ECON325 Intermediate Macroeconomic Analysis or ECON326 Intermediate Microeconomic Analysis can substitute these courses for ECON305 or ECON306, respectively. BMGT341 Financial Markets is an approved substitute for ECON330.	

In addition to the major requirements listed above, please consult Chapter 6 or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Dietetics

For more information see Nutrition and Food Science in Chapter 7.

Early Childhood/Early Childhood Special Education

For more information, see Human Development/Institute for Child Study (HDQM) under Human Development and Quantitative Methodology (HDQM) section in Chapter 7 of the Catalog.

Economics (ECON)

College of Behavioral and Social Sciences
3114 Tydings Hall, 301-405-3266
www.econ.umd.edu
Chair: M. Cropper (Distinquished University Professor)
Director: C. Clement (Director of Undergraduate Studies)
Professors: K. Abraham, L. Ausubel, J. Chao, P. Cramton, A. Drazen, S. Galiani, J. Haltiwanger (Distinguished University Professor), J. Hellerstein, Z. Jin, S. Kalemli-Ozcan, M. Kearney, G. Kuersteiner, N. Limao, P. Murrell, I. Prucha (Distinguished University Professor), D. Vincent, J.

Wallis
Associate Professors: S. Aruoba, P. Coughlin, E. Filiz Ozbay, E. Kaplan, Y. Masatlioglu, E. Ozbay, J. Shea (Assoc. Chair & Director of Graduate Studies), A. Sweeting, S. Urzua
Assistant Professors: J. Goldberg, E. Lee, F. Saffie, L. Stevens, L. Turner
Lecturers: H. Abbasi Alikamar, M. Copelman, R. Decker, A. Finkle, E. Leibtag, N. Montgomery, E. Moody, J. Neri (Senior Lecturer), J. Sabelhaus, N. Sarna, S. Scandizzo (Senior Lecturer), J. Straub, S. Verma
Professors Emeriti: C. Almon, R. Bennett, R. Betancourt, F. Brechling, C. Clague, J. Cumberland, R. Dardis, C. Hulten, H. Kelejian, M. McGuire, P. Meyer, R. Schwab, P. Wonnacott

The Major

Economists study a wide range of phenomena using analytical methods which describe how people and collections of people behave and interact. Many economists define their profession as the analysis of decisions made in the context of scarcity. Economics can also be described as the study of the production, pricing, and distribution of goods and services within societies. Economists study such issues as inflation, unemployment, poverty, environmental quality, financial markets, and international trade. Economists also apply their methods of analysis to such diverse areas as crime, health care, discrimination, and the problems of developing countries.

Courses offered by this department may be found under the following acronym: ECON. As a large, diverse department, courses are offered in many of the major fields of economic study. Several courses analyze the role of the government policies impacting economic outcomes, while others focus on developing advanced applications of economic theories and methodologies.

Students can learn about the methods of analysis that economists use and about the various fields of inquiry where economists have been most productive. Undergraduate economics majors choose between two curriculums, one leading to a Bachelor of Arts degree and the other to a Bachelor of Science. In the BA track, students learn how to apply economic analysis to a variety of social issues, as well as, the fundamental methodological tools. In the BS track, students focus more attention on the methodology of economic analysis, which requires more emphasis on quantitative skills.

Economics majors have a wide variety of career options, including positions in state and local government, federal and international agencies, business, finance and banking, journalism, teaching, politics and law. Many economics majors pursue graduate work in economics or another social science, law, business or public policy.

Program Learning Outcomes

Students are expected to fully utilize the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

- Understanding of the key terminology used within the discipline.

- Ability to use the fundamental methods and tools of the discipline to model economic behavior and to describe and analyze relationships between economic variables.
- Ability to interpret and apply descriptive and inferential statistics.
- Ability to analyze the effect of government policies on the economy using both conceptual and quantitative tools.
- BA track: Ability to articulate how economic analysis can be used to improve decision-making in various situations.
- BS track: Ability to carry out various techniques for evaluating hypotheses regarding economic phenomena.

Requirements for the Major

In addition to the university's general education requirements, students must earn a minimum of 39 credits via a combination of foundation and elective courses in Economics and Math as listed below. Both the Bachelor of Arts and the Bachelor of Science tracks require a sequence of courses starting with introductory micro and macroeconomics, as well as, calculus. Students then proceed to intermediate level courses in theory and statistics. Finally, students take at least one upper-level course focused on quantitative analysis plus several upper-level courses where you explore specific topics in more depth. Both tracks require the same number of courses.

All courses must be passed with a grade of "C-" or better to count towards the foundation and elective requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. A course used to fulfill one requirement for the major may not count towards any other economics major requirement.

Bachelor of Arts

Foundation Courses		**Credits**
ECON200	Principles of Microeconomics	3
ECON201	Principles of Macroeconomics	3
MATH120 **or** MATH140	Elementary Calculus I **or** Calculus I	3/4
ECON230 **or** BMGT230	Applied Economic Statistics **or** Business Statistics	3
ECON305	Intermediate Macroeconomic Theory & Policy	3
ECON306	Intermediate Microeconomic Theory & Policy	3
Economics Electives Courses		
*One from**		
ECON300	Methods & Tools for Economic Analysis	3
ECON402	Macroeconomic Models and Forecasting	
ECON424	Applied Econometrics	
ECON426	Economics of Cost-Benefit Analysis	
Two from		

ECON3xx/4xx	Any 300/400 level ECON courses designated for the BA	6
Three from		
ECON4xx	Any 400 level ECON courses designated for the BA	9
One from		
ECON386	Economics Experiential Learning **or** other experiential learning course(s) **or** a 300/400 level ECON course designated for the BA	3

Bachelor of Science

Foundation Courses		**Credits**
ECON200	Principles of Microeconomics	3
ECON201	Principles of Macroeconomics	3
MATH140	Calculus I	4
MATH141	Calculus II	4
ECON321	Economic Statistics **or**	3
STAT400	Applied Probability and Statistics	
ECON325	Intermediate Macroeconomic Analysis	3
ECON326	Intermediate Microeconomic Analysis	3
ECON422	Econometrics I	3
ECON423	Econometrics II	3
ECON406	Advanced Microeconomics **or**	3
ECON407	Advanced Macroeconomics	
Economics Electives Courses		
Three from		
ECON4xx	Any 400 level ECON courses designated for the BS	9

**The Economics curriculum may be updated over time, given college and campus approval. Students will be notified as other appropriate courses are approved that fulfill the requirements for the major.*

Other Requirements for the Major

Study Sequences and Plans of Study

Those students planning to pursue graduate study in economics must begin to prepare themselves analytically for graduate work by focusing on theory, statistics, and mathematics in their undergraduate curriculum. These students should consider the full econometrics sequence of ECON422 and 423. Mastery of advanced calculus and linear algebra is essential for entrance into graduate schools, and therefore students must take MATH140, MATH141, MATH240, MATH241 and MATH246. Students should also plan on taking MATH410 and 411.

Benchmarks

In accordance with the University's policies, the Department of Economics expects students to make timely progress towards graduation. To help measure progress during the early stages of a student's studies in economics, students will have to complete courses designated as benchmarks within a specified number of semesters in order to continue in their major.

Bachelor of Arts - Students must complete the following five courses within two semesters of entering the major:

- ECON200, ECON201, and MATH120 or MATH140 with grades of C- or higher
- One additional GenEd course with a D- or higher
- Academic Writing with a C- or higher

Bachelor of Science - Students must complete the following six courses within two semesters of entering the major:

- ECON200, ECON201, MATH140, and MATH141 with grades of C- or higher
- One additional GenEd course with a D- or higher
- Academic Writing with a C- or higher

These benchmark deadlines may not be appropriate for all incoming students (depending upon credit earned prior to entering the major and math placement). All students complete an individualized benchmark contract with an ECON advisor, either at orientation or in the process of declaring the major. Freshmen wishing to declare an Economics major should see an advisor as soon as possible in order to set appropriate benchmarks and establish a coherent graduation plan.

Advising

Departmental academic advisors work with current and prospective majors on a walk-in basis, Monday - Friday from 10:00 a.m. - 4:30 p.m. Majors are encouraged to see an advisor at least once an academic year to verify progress in their program requirements. Further information on courses, internships, the department honors program, careers, and graduate schools may be obtained from the advisors.

Location: 3108 Tydings Hall
Phone: 301-405-8367

Honors Program

The Economics Honors Program provides economics majors with the opportunity for advanced study in a seminar format, with faculty supervision of an honors thesis. The Honors Program is designed for students planning to attend graduate school or those seeking an in-depth study of economic theory and its application to economic problems.

For detailed information on the Honors Program, including eligibility requirements, visit the ECON website at http://www.econ.umd.edu/undergraduate/departmental-honors-program.

Student Societies and Professional Organizations

The Economics Association of Maryland is an undergraduate club that meets regularly to discuss graduate study in economics and other fields, employment opportunities, and recent economic trends. Please see the Undergraduate Economics Advisors in 3108 Tydings for more information.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Dudley and Louisa Dillard Award is given to an outstanding economics honors student with one of the best honors thesis.

The Sujon Guha Memorial Award for Academic Excellence and Outstanding Leadership is awarded to an economics honors student with one of the best honors thesis.

The Martin Moskowitz Award is presented to a graduating senior based on academic excellence and a demonstrated commitment to and philosophy of public service.

The Moskowitz Family Scholarship is awarded to an academically successful economics major with demonstrated financial need.

The Mark C. Sullivan Economics Scholarship is awarded to an economics major who came from the eastern part of the state and has high academic performance.

The Honorable Idamae Garrott Memorial Scholarship supports academically talented majors who demonstrate financial need.

The Mark D. Turner and Tracye C. Turner Scholarship in Economics is awarded to an economics major who shows commitment to using their degree to assist minority communities.

The Melanie E. (Lee) Easley Memorial Scholarship supports an economics major with demonstrated financial need and a solid academic standing.

The John Cumberland Award in Environmental Economics is given to support the research and scholarship of an academically talented economics major in the fields of environmental economics.

The Peggy Rae and John Sapienza Scholarship is awarded to a junior or senior economics major and is intended to facilitate the education of a hardworking student and encourage him/her toward graduation.

Electrical Engineering (ENEE)

A. James Clark School of Engineering

2426 A.V. Williams Building, 301-405-3685
www.ece.umd.edu
eceadvise@umd.edu
Chair: R. Chellappa (Distinguished Scholar Teacher, Chair)
Professors: E. Abed, T. Antonsen, J. Baras, A. Barg, R. Barua, S. Bhattacharyya, G. Blankenship (Associate Chair, External Relations), M. Dagenais, C. Davis (Distinguished Scholar Teacher), A. Ephremides (Distinguished University Professor), C. Espy-Wilson (Distinguished Scholar Teacher), R. Ghodssi (Distinguished Scholar Teacher), V. Gligor (Res Prof), J. Goldhar, N. Goldsman, R. Gomez (Associate Chair, Undergraduate Education), V. Granatstein, A. Iliadis, J. JaJa, B. Jacob, J. Kim (Prof Of Practice), P. Krishnaprasad, W. Lawson, W. Levine (Res Prof), K. Liu (Distinguished Scholar Teacher), A. Makowski, S. Marcus (Distinguished Scholar Teacher), I. Mayergoyz (Distinguished Scholar Teacher), J. Melngailis, H. Milchberg (Distinguished Scholar Teacher), T. Murphy, K. Nakajima, P. Narayan, R. Newcomb, P. O'Shea (Distinguished Scholar Teacher), Y. Oruc, E. Ott (Distinguished University Professor), G. Qu, S. Shamma, M. Shayman, J. Simon, P. Sprangle, A. Srivastava (Associate Chair, Graduate Education), A. Tits, S. Ulukus, T. Venkatesan (Res Prof), U. Vishkin, M. Vorontsov (Res Prof), M. Wu (Distinguished Scholar Teacher)
Associate Professors: P. Abshire, P. Dowd (Res Assoc Prof), M. Franklin, M. Hafezi, T. Horiuchi, A. Khaligh, R. La, N. Martins, A. Papamarcou, E. Waks, D. Yeung (Director of Computer Engineering)
Assistant Professors: B. Babadi, D. Dachman-Soled, T. Dumitras, J. Munday, C. Papamanthou, M. Rotkowitz
Lecturers: D. Bowen (Lecturer), W. Hawkins, P. McAvoy (Res Assoc, Lecturer), N. Mogul (Lecturer), S. Picozzi (Lecturer)
Affiliate Professors: A. Agrawala, J. Aloimonos, S. Anlage, S. Bhattacharjee, L. Davis, M. Fu, A. Harris, J. Hollingsworth, D. Lathrop, D. O'Leary, R. Phaneuf, G. Rubloff, E. Smela, F. Wellstood
Affiliate Associate Professors: I. Appelbaum, M. Cukier, R. Duraiswami, R. Kishek (Res Assoc Prof)

Affiliate Assistant Professors: Y. Chen
Professors Emeriti: D. Barbe, L. Davisson, N. De Claris, F. Emad, N. Favardin, R. Harger, P. Ho, C. Lee, P. Ligomenides, J. Orloff, M. Peckerar, J. Pugsley, H. Rabin, M. Reiser, M. Rhee, C. Silio, C. Striffler, L. Taylor, S. Tretter, K. Zaki

The Major

Electrical engineers create innovative technology solutions in a wide range of areas, from handheld communications to solar panels; from cardiac pace makers to autonomous robots; from wireless networks to bio-engineered sensors that detect dangerous pathogens; and intelligent surveillance systems that perform face and motion recognition. Employers visiting campus seek out electrical engineering students for recruitment more than any other major at the University of Maryland.

Electrical engineers have been uniquely responsible for developing many of the innovations that have brought us modern life and are urgently needed today to help solve a variety of global problems, including challenges related to energy, communications, health care, global warming, and national security. Electrical engineering underpins all other engineering disciplines, encompassing biomedical devices technology, micro- and nanoelectronics, information systems, wireless communications and signal processing, power systems, lasers and optics, electronic devices, computer software-hardware integration, and control systems. Electrical engineers led revolutions in the music and telecommunications industries, and are poised to lead the next revolutionary innovations in nanotechnology, robotics, and other advanced technologies.

The Bachelor of Science degree in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Program Objectives

Broadly stated, the **Program Educational Objectives (PEOs)** for the undergraduate major in electrical engineering pertain to the accomplishments and performance of our students 3-5 years after graduation. These objectives are determined in consultation with the various constituencies of the electrical engineering program and agreed upon and approved by a consensus of the faculty.

1. Achieve a leadership position in a reputable industry or government institution.

2. Achieve a graduate degree in a highly ranked academic program.

3. Become an innovator and creative entrepreneur.

Program Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Electrical Engineering students are expected to possess by the time they graduate so the PEOs can be

accomplished. The SLOs are:

- **(a)** An ability to apply knowledge of mathematics, science, and engineering
- **(b)** An ability to design and conduct experiments, as well as analyze and interpret data
- **(c)** An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- **(d)** An ability to function on multi-disciplinary teams
- **(e)** An ability to identify, formulate, and solve engineering problems
- **(f)** An understanding of professional and ethical responsibility
- **(g)** An ability to communicate effectively
- **(h)** The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- **(i)** A recognition of the need for, and an ability to engage in, life-long learning
- **(j)** A knowledge of contemporary issues
- **(k)** An ability to use modern engineering tools necessary for engineering practice.

Admission to the Major

Admission requirements for the Electrical Engineering major are determined by the A. James Clark School of Engineering. See Chapter 6 for the Clark School admission requirements. For details on the University's requirements and general admission procedures please see Chapter 1.

Requirements for the Major

Requirements for the Electrical Engineering major include thorough preparation in mathematics, physics, chemistry, and engineering science. Elective courses must include both Electrical Engineering courses and technical courses outside the department. Students must earn a grade of "C-" or higher in all engineering, mathematics, and science courses, as well as the prerequisites for these courses. A sample program is shown below.

	Freshman Year	Credits First Sem	Credits Second Sem
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
MATH140/141	Calculus I / Calculus II	4	4
ENES100	Intro. To Engineering Design	3	
ENEE140*	Intro. To Programming Concepts for Engineering	2	
ENEE150	Intermediate Programming Concepts for Engineers		3
	General Education**	3	3
	Total	**15**	**13**

	Sophomore Year++	Credits First Sem	Credits Second Sem
MATH241	Calculus III	4	
MATH246	Differential Equations	3	
PHYS260/261	General Physics II and Lab	4	
PHYS270/271	General Physics III and Lab		4
ENEE222	Elements of Discrete Signal Analysis		4
ENEE244	Digital Logic Design	3	
ENEE205	Electric Circuits		4
ENEE200**	Social & Ethical Dimensions of ECE Technology		3
	General Education**	3	
	Total	**17**	**15**

	Junior Year	Credits First Sem	Credits Second Sem
MATH4xx***	Advanced Elective Math		3
ENEE303	Analog and Digital Electronics	3	
ENEE307	Electronics Circuits Design Lab	2	
ENEE313	Intro. to Device Physics	3	
ENEE322	Signal and System Theory	3	
ENEE324	Engineering Probability		3
ENEE350	Computer Organization		3
ENEE380	Electromagnetic Theory	3	
ENEE381	Electromagnetic Wave Program		3
	General Education**		3
	Total	**14**	**15**

	Senior Year	Credits First Sem	Credits Second Sem
ELECTIVE	EE Electives	7	6
ELECTIVE	Free Technical Electives****	3	6
ENGL393	Technical Writing	3	
	General Education**	3	3
	Total	**16**	**15**

++ Effective with the Fall 2009 freshmen admit class, students will be required to follow the new curriculum above. Students enrolled prior to Fall 2009 or students enrolled in parallel programs at other 2 and 4 year institutions should follow the old requirements. However, records will be reviewed when necessary on an individual basis during the phase in/out period, and adjustments made in degree requirements.

*Students must complete ENEE140 or pass the exemption exam or AP CS exam before taking ENEE150.

** Note: Please see www.4yearplans.umd.edu.

***Must come from list of approved Math courses within free technical elective list.

****Must come from list of courses approved for free technical electives with at least two elective EE courses taken from the same specialty area.

Technical Elective Requirements

Effective Fall 2008, all entering BSEE students must:

1. Distribute their 13 credits of EE technical electives among the following course categories:

Category A. Advanced Theory and Applications: minimum of 3 credits
Category B. Advanced Laboratory: minimum of 2 credits
Category C. Capstone Design: minimum of 3 credits

Note: ENEE499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy either the Category A or the Category B requirement subject to approval by the faculty supervisor and the Associate Chair; it cannot be used as a Category C course. The maximum number of ENEE499 credits that may be applied towards EE technical elective requirements is five.

2. Distribute their 9 credits of free technical electives as follows:

a. They may be any upper-level course (300 level or higher) from the math, engineering, and basic science disciplines whose courses start with the following prefixes and who do not appear on the list of unacceptable courses available from the Undergraduate Studies Office: AMSC,

BCHM, BIOE, BSCI, CHEM, CMSC, ENAE, ENCE, ENCH, ENEE, ENES, ENFP, ENMA, ENME, ENNU, ENRE, MATH, PHYS, and STAT. The most up-to-date list of approved and unacceptable courses will always be available from the Undergraduate Studies Office and on the ECE website.

b. They may be any upper-level course (300 level or higher) whose prefix is not given in the list above, assuming that the student: (i) completes the application to allow the course to count as a free elective, (ii) demonstrates how this course complements the student's professional goals, and (iii) receives the signed approval of the Associate Chair for Undergraduate Education. If more than one course is taken via this option, all of those courses must have a closely-related theme.

3. Have two courses from the same ENEE specialty area. A list of courses grouped according to specialty area is available from the Undergraduate Studies Office and on the ECE website.

If you have any questions about how these requirements affect your current selection of senior EE electives, please contact an advisor.

Technical electives for students admitted Spring 2001 - Spring 2008:

The 13 credits of EE technical electives among the following course categories:

		Credits
Category A	Advanced Theory and Applications	minimum of 3
Category B	Advanced Laboratory	minimum of 2
Category C	Capstone Design	minimum of 3

Please read carefully, and make a note of, the following special cases and other items:

1. Two credits of ENEE499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE499 credits that may be applied towards EE technical elective requirements is five.

2. Additional Capstone Design courses can be used as substitutes for

- the required Advanced Theory and Applications course; and/or
- the required Advanced Laboratory course, provided one of the following is completed: ENEE408A, 408B, 408C, or 408F.

3. Completion of ENEE408A and ENEE459A satisfies both the Capstone Design and Advanced Laboratory requirements.

4. If you have any questions on how these requirements affect your current selection of senior EE electives, please contact an advisor.

Advising

All ECE students have mandatory advising every single semester, provided by the professional advising staff of the ECE Undergraduate Studies Office. Departmental permission is required in order for students to register and for all courses in the major. The Department's Undergraduate Studies Office (2426 A.V. Williams Building, 301-405-3685) is the primary point of contact for undergraduates with advising questions and detailed curriculum requirements, registration information, and advising and mentoring procedures can be found on the ECE Undergraduate Advising website: http://www.ece.umd.edu/undergrad/advising.

Undergraduate Research Experiences

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human- computer interaction, and virtual reality. Undergraduate students are encouraged to engage in research at some point during their education. Active participation in research not only allows students to apply what they have learned in class, it also gives them greater insight into a specific area within ECE and an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications. Research experience also prepares students for the demands of graduate school and the work force. Information on participating in undergraduate research can be found at http://www.ece.umd.edu/undergrad/courses/400-level/enee499.

The ECE department also offers unique summer research programs. The Maryland Engineering Research Internship Team program offers research opportunities for top undergraduates from across the country interested in using computer engineering skills and tools to address important biosystems applications. The Transportation Electrification program (http://reu.ece.umd.edu/) offers research opportunities for students interested in sustainable transportation systems, particularly in power electronics, energy storage (battery, ultracapacitor and fuel cell), optimization and mathematical modeling of grid-integrated vehicles, and sustainable transportation.

Internships

Information on internships can be found at www.coop.eng.umd.edu. Other internships are advertised by the ECE Department's Office of External Relations, and Undergraduate Studies Office.

Co-op Programs

Participation in a Cooperative Education Program or internship with private industry or a government agency is strongly encouraged. See the A. James Clark School of Engineering catalog entry for details.

Honors Program

The Electrical and Computer Engineering Honors Program (www.ece.umd.edu/undergrad/honors) is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. Please visit the ECE Honors website (www.ece.umd.edu/undergrad/honors) for program course requirements. Students completing all program requirements with a "B" average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma. Students with the necessary academic qualifications are invited to apply to the program, typically after the completion of their sophomore year.

Student Societies and Professional Organizations

The ECE Department has an active student chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and instructions for joining can be found on their website (http://umd.orgsync.com/org/ieee/home). Equally active is the Gamma Xi chapter of Eta Kappa Nu honor society which is dedicated to recognizing excellence in electrical and computer engineering. Information on eligibility can be obtained by visiting their website (http://ece.umd.edu/hkn/).

Scholarships and Financial Assistance

Several scholarships are administered through the department and many others through the Clark School of Engineering. To be considered for these awards, students must submit an application by May 31st of each year for the following academic year. For more information visit: www.ursp.umd.edu/scholarships/index.html.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Department of Electrical and Computer Engineering offers the following awards: 1. Outstanding academic performance award to a junior for academic excellence; 2. Service award to the graduating senior who has shown a commitment of service to fellow students; and 3. Chair's Award for outstanding academic performance to a graduating senior.

Job Opportunities

Electrical engineers were primarily responsible for the recent revolutions in the music, telecommunications and medical device industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics,

microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

Elementary Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

English Language and Literature (ENGL)

College of Arts and Humanities
1128 Tawes Hall, (301) 405-3825
www.english.umd.edu
english@umd.edu
Chair: A. Bailey
Director: C. Walter
Professors: E. Arnold, J. Auerbach, A. Bailey, C. Caramello, K. Cartwright, M. Casey, W. Cohen, T. Coletti, M. Collier, M. Collins, J. Donawerth, N. Fraistat, D. Hamilton, L. Kauffman, M. Kirschenbaum, R. Levine, H. Norman, M. Olmert, B. Pearson, S. Plumly, S. Ray, B. Richardson, L. Rosenthal, M. Smith, O. Wang, M. Washington, J. Weiner, D. Wyatt
Associate Professors: R. Bauer, T. Chico, L. Coleman, K. Coles, J. Enoch, O. Gaycken, M. Israel, S. Jelen, K. Kraus, M. Lindemann, P. Mallios, E. Mitchell, T. Moser, Z. Nunes, R. Ontiveros, G. Passannante, K. Robertson, J. Rudy, V. Valiavitcharska, C. Walter, S. Wible, E. Wong
Assistant Professors: C. Adsanatham, S. Balachandran Orihuela, J. Fleming, M. Kill, L. Konstantinou, S. Trudell
Lecturers: E. Robinson
Professors Emeriti: J. Auchard, V. Beauchamp, A. Berlin, J. Bryer, V. Carretta, R. Coogan, S. Cooper, R. Cross, J. Fahnestock, V. Flieger, G. Hamilton, E. Hammond, R. Harrison, H. Herman, N. Isaacs, R. Jellema, R. Kolker, L. Lawson, T. Leinwand, S. Leonardi, S. Logan, M. Mack, M. Marcuse, C. Peterson, W. Peterson, L. Ryan, R. Vitzthum, C. Winton

The Major

The English major has four parts: English 301, Group I Requirements, Group II Requirements, and Emphasis/Elective Requirements. English 301 is a required course and should usually be taken in the first semester after a student becomes an English major. Group I Requirements provide a broad foundation in literary history and an awareness of questions an inquiring reader might ask of a text. Group II Requirements explore in greater depth both literary periods and literary themes across periods, and develop skills in reading, criticism, writing, and research. The Emphasis/Elective Requirements allow students to focus on their personal interests within the major.

- The major requires 36 credits beyond the University's Fundamental Studies requirements. At least 30 of the 36 credits must be at the 3xx- or 4xx-level; at least 12 credits must be 4xx-level.
- A "C-" or better is required in each course making up the 36 credits of the major.
- An overall GPA of 2.0 in the major is required for graduation.
- Only 3 credits of ENGL388 (Internship) may be included in the 36 credits of the major.
- Only 6 credits of ENGL429 (Independent Study) may be included in the 36 credits of the major.
- Only 9 credits of ENGL379 (Special Topics) may be included in the 36 credits of the major.
- Only 9 credits of ENGL428 (Seminars) may be included in the 36 credits of the major.

Program Objectives

The English major has been designed to give students an overview of the history and variety of literature written in English; to use the critical study of language and literature to help students think carefully and express themselves well; and to introduce students to the debates about literature and culture that shape our intellectual lives and our national and global conversations. Our hope is that our graduates will enter the world with the sophistication, critical acumen, and sympathy born of wide reading and with the skills needed to carry their convictions into action, no matter what line of work they pursue.

Program Learning Outcomes

- Students will be able to analyze texts critically.
- Students will be able to write persuasively.
- Students will be able to conduct research in English studies.
- Students will be able to communicate the importance of studying literature, rhetoric, and writing across time and from various perspectives.

Requirements for the Major

The English major requires 36 credits distributed as follows:

	Credits
ENGL301: Critical Methods in the Study of Literature	**3**
English majors must take ENGL 301 before they take other 3xx or 4xx level English courses. We strongly recommend it be taken during the sophomore year.	
GROUP I REQUIREMENTS *(One course to be taken in each area)*	**9**
Literary and Cultural History	3
Literary, Linguistic, or Rhetorical Analysis	3

Literature of African-Americans, Peoples of Color, Women, and/or Lesbians, Gays, Bisexuals, and Transgendered	3
GROUP II REQUIREMENTS *All courses to be taken at the 3xx-and 4xx-level. At least 12 credits within Group II and the Emphasis/Elective Requirements must be at the 4xx-level.*	**12**
Writing before 1800 (two courses)	6
Modern British, Anglophone, and/or Postcolonial Writing after 1800 (one course)	3
American, African American, and/or U.S. Ethnic Writing (one course)	3
EMPHASIS/ELECTIVE REQUIREMENTS *All course to be taken at the 3xx- and 4xx- level. At least 12 credits within Group II and the Emphasis/Elective Requirements must be at the 4xx-level.*	**12**
Four English emphasis courses which may follow a designated pathway if the student desires. Students may also count one 3xx- or 4xx-level literature course in a literary tradition other than English, either in the original language or in translation, as an elective.	

Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

English and English Education Double Major
In conjunction with the College of Education, the English Department offers a special 125-credit program for students wishing to double major in English and English Education, allowing them to earn a certificate to teach English at the secondary level. For a list of requirements, contact the English Undergraduate Studies Office (1128 TWS, 301-405-3825).

All courses presented for the major must be passed with a grade of "C-" or better. An overall GPA of 2.0 in the major is required for graduation.

Requirements for the Minor

Requirements for the Creative Writing Minor

The minor in Creative Writing offers students the opportunity to engage deeply with their own writing and that of their peers in a graduated series of workshops led by professional writers of poetry and prose.

The Creative Writing minor's 15 credits consist of the following:

- Three credits at the 2xx-level (ENGL271 or ENGL272 or ENGL273 or AASP274/ENGL274)
- Three credits at the 3xx-level (ENGL352 or ENGL353)
- Six credits at the 4xx-level (two sections of ENGL498 or of ENGL499)
- Three credits in any upper-level English literature course

After admission to the minor, students choose to specialize in either prose (352, 498) or poetry (353, 499). Students admitted directly to a 3xx-level workshop must take three workshops (9 credits) at the 4xx-level.

No course grade below the grade of C- may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Requirements for the Professional Writing Minor

1220 Tawes Hall
301-405-3763
pwminor@umd.edu

For students who wish to specialize in public and professional writing as an area of expertise and for students who wish to communicate their discipline through writing, the Professional Writing minor offers opportunities to engage deeply with the theory and practice of writing, editing, and designing both print and digital documents for professional workplaces, civic organizations, and community deliberations. Students will develop electronic portfolios throughout their minor coursework as a means to showcase their professional writing knowledge and skills. Writing-focused internships will be encouraged, although not required, in the later stages of coursework.

Successful completion of the Professional Writing minor requires the following:

A. Fifteen credit hours of coursework consisting of:

1) Three credits in ENGL 297: Introduction to Professional Writing

2) Twelve credits from the following courses, including at least nine credits at the 3xx or 4xx level and three credits at the 4xx level:

ENGL281: Standard English Grammar, Usage, and Diction (See Note 1)

ENGL282: How Rhetoric Works: Persuasive Power and Strategies

ENGL291: Writing, Advising, Persuading

ENGL292: Writing for Change

ENGL293: Writing in the Wireless World

ENGL381: MGA Legislative Seminar (See Note 2)

ENGL384: Concepts of Grammar (See Note 1)

ENG388M: Writing Internship: Maryland General Assembly Pre-Professional Writing Internship (See Note 2)

ENGL388P: Writing Internship: Pre-Professional Writing Skills Internship

ENGL388V: Undergraduate Teaching Assistant (UTA) Internship in Academic Writing or Professional Writing

ENGL388W: Writing Internship: Writing Center Internship

Professional Writing Program Courses:

ENGL390: Science Writing

ENGL391: Advanced Composition: Argumentation

ENGL392: Legal Writing

ENGL393: Technical Writing

ENGL394: Business Writing

ENGL395: Writing for the Health Professions

ENGL398A: Writing for the Arts

ENGL398B: Writing for Social Entrepreneurship

ENGL398C: Writing Case Studies and Investigative Reports

ENGL398E: Writing for Economics

ENGL398L: Scholarly Writing in the Humanities

ENGL398N: Writing for Non-Profit Organizations

ENGL398R: Writing Non-Fiction Narratives

ENGL398V: Writing for the Environment

ENGL487: Foundations of Rhetoric

ENGL488: Topics in Advanced Writing

ENGL493: Advanced Writing Theory and Practice

ENGL494: Editing and Document Design

B. Submission of an electronic professional writing portfolio

Successful completion of the Professional Writing minor also requires the submission of a writing portfolio during a student's final semester. This portfolio must be submitted to the minor advisor by November 1 for fall semester graduation or April 1 for spring semester graduation. The electronic portfolio must contain, at a minimum, the following material: 1. A welcome page; 2. Six finished, polished texts written by the student in Professional Writing minor courses; and 3. A reflective essay that analyzes how these documents demonstrate the student's achievement of the minor's learning outcomes. The minor advisor will confirm that each portfolio meets these minimum requirements.

Notes:

1. Credit toward the minor will be granted for only one of these two courses: ENGL281 or ENGL384.

2. ENGL381 is a prerequisite for ENGL388M.

3. A student cannot count toward the Professional Writing minor the PWP course that he or she takes to fulfill the Fundamental Studies Professional Writing requirement for the University of Maryland General Education Program. Only a second PWP course can be used to fulfill the Professional Writing minor requirement. Advisors will encourage students to select a second PWP course only if it complements the students' academic or professional goals.

4. Students may satisfy up to three credits of the nine-credit 3xx- or 4xx-level coursework requirement through documented writing-intensive professional or internship experience. Students must submit an acceptable portfolio of workplace writing to the Professional Writing minor advisor in order to have these three credits count toward their minor.

5. Following university policy, English majors may count two Professional Writing minor courses toward both the requirements for the English major and the Professional Writing Minor.

Students must be accepted into the minor no later than the start of the semester before the semester in which they plan to graduate.

All courses presented for the minor must be passed with a grade of "C-" or better.

An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Requirements for the Rhetoric Minor

The minor in Rhetoric is an interdisciplinary program offered through the cooperation of the Department of English and the Department of Communication. Requirements are listed in the Communication section of the catalog.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Advising

Advising

Academic advising is available throughout the year in 1128 Tawes Hall. Departmental academic advising is mandatory for all majors each semester. Students should check Testudo for their registration date and schedule an advising appointment for at least one week in advance of that date. The English Department also offers internship and career advising. Advising appointments can be made by calling 301-405-3825 or by visiting the English Undergraduate Studies Office in 1128 Tawes Hall. For information, visit: www.english.umd.edu/academics/undergraduate/advising.

The Writing Center

The Writing Center, 1205 Tawes Hall, 301-405-3785, provides free tutoring to undergraduate students with writing assignments. Appointments are recommended, but walk-ins are welcome based on availability of tutors. Appointments can be made by calling the Writing Center or visiting its website. Students, faculty, and staff with questions about punctuation, sentence structure, word choice, or documentation can call the Writing Center's Grammar Hotline at 301-405-3785. For information, visit: www.english.umd.edu/academics/writingcenter.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Internships

The department both sponsors internships and offers credit for outside pre-professional internships. Departmental internships include: Maryland General Assembly Internship, Dickinson Electronic Archives Digital Humanities Internship, Romantic Circles Internship, Maryland Institute for Technology in the Humanities (MITH) Internship, Writing Center Internship, Undergraduate Teaching Assistants in Writing Programs Internship, and Pre-Professional Writing Skills Internship. For more information, visit: www.english.umd.edu/academics/undergraduate/internships.

Honors Program

The English Honors Program offers lively and challenging seminars, the opportunity to do a long-term project in an area of special interest, and the sort of intellectual and literary community that you might find at a small liberal arts college. Students work closely with faculty members and peers in seminars and on a senior project. Interested students should ask for details from an English Department advisor as early as possible in their college careers. For information, visit: www.english.umd.edu/academics/undergraduate/honors.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Academic Excellence in English
The English Department Academic Excellence Awards are presented each term to students graduating in English with the most outstanding academic records in their coursework in the major. Winners receive a certificate and a signed book from the department.

Henrietta Spiegel Creative Writing Award
This award is bestowed each spring to honor undergraduate work in creative writing judged by the Creative Writing faculty to be the most outstanding. It is named for the oldest person ever to complete an undergraduate degree at the University of Maryland (B.A. in English, 1989, at age 92).

Joseph W. Houppert Memorial Prize
This prize, named for a distinguished member of the department who served from 1963 until his death in 1979, is awarded each spring to the undergraduate who has written the best essay on Shakespeare during the academic year.

Joyce Tayloe Horrell Award
This award, in memory of a master teacher in the English Department from 1960 to 1967, is conferred annually on the English major who has demonstrated the highest academic achievement among the graduating class.

Sandy Mack Award for Outstanding Work in English Honors
This prize, which is given each spring to the student with the most outstanding overall record in English Honors, is named for the faculty member who developed the English Honors Program and guided it for many years.

Sara Ann Soper Undergraduate Service Award
This award honors a graduating senior who has volunteered time, energy, and commitment to

community service. It memorializes the mother of a 1989 English graduate, Shannon Altman, who endowed it.

English Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

Entomology (ENTM)

College of Computer, Mathematical, & Natural Sciences
4112 Plant Sciences Building, 301-405-3911
www.entm.umd.edu
Chair: L. Pick (Prof & Chair)
Director: B. Kent (Inst & Dir)
Professors: A. Brown, W. Lamp, C. Mitter, D. O'Brochta, M. Palmer, M. Raupp, R. StLeger, S. Via
Associate Professors: D. Gruner, D. Hawthorne, C. Hooks, M. Neel, P. Shrewsbury, J. Shultz, J. Wang
Assistant Professors: M. Fritz, K. Hamby, D. Vanengelsdorp
Senior Lecturer: T. O'Brien (Lecturer)
Lecturers: L. Shapiro (Lecturer), M. Shofner (Lecturer)
Affiliate Professors: G. Brust
Affiliate Associate Professors: U. Pal, L. Wu
Adjunct Professors: D. Davis, C. Labandeira, W. Mathis, D. Miller, J. Pettis, R. Robbins, M. Schauff, T. Schultz
Adjunct Associate Professors: J. Lill, S. Lingafelter, S. Scheffer
Adjunct Assistant Professors: S. Zebelo
Assistant Research Scientist: P. Graham (Asst Res Sci)
Professors Emeriti: E. Armstrong, P. Barbosa, J. Davidson, G. Dively, J. Hellman, J. Linduska, M. Ma, D. Messersmith, J. Nelson, B. Thorne

The Major

See Biological Sciences Program.

Program Objectives

See Biological Sciences Program.

Program Learning Outcomes

See Biological Sciences Program.

Admission to the Major

See Biological Sciences Program.

Placement in Courses

See Biological Sciences Program.

Requirements for the Major

Undergraduate students interested in Entomology should declare the General Biology specialization within the Biological Sciences Program (see separate listing). Students should also contact the Entomology Director of Undergraduate Studies for information on pursuing a career in Entomology.

Requirements for Specialization

See the Biological Sciences Program listing in this catalog, or contact the Entomology Director of Undergraduate Studies for the General Biology requirements.

Advising

Advising is non-mandatory, but recommended in the Biological Sciences Program. The Department of Entomology faculty coordinate and advise students in the General Biology (GENB) specialization whose last names begin with the letters A through M. Contact the Department of Entomology (301-405-3911) for information about advising, or to schedule an appointment with an advisor or the Entomology Director of Undergraduate Studies. For advising on other Biological Sciences Program specializations, see the Biological Sciences Program listing in this catalog.

Undergraduate Research Experiences

Students in the Biological Sciences Program can engage in research with Entomology faculty either in either departmental or off-campus facilities. Contact the Entomology Director of Undergraduate Students for more information.

Fieldwork Opportunities

Students in the Biological Sciences Program can engage in fieldwork related to either basic or applied research with Entomology faculty. Contact the Entomology Director of Undergraduate Studies for more information.

Honors Program

The Entomology Honors Program provides the opportunity for highly motivated and academically qualified undergraduates to engage in original, independent research under the guidance of an Entomology faculty mentor. The program is open to all Biological Science

Program students who have (1) junior standing (including at least twelve credits within the major), (2) a minimum overall GPA and major courses GPA of 3.2, and (3) a Department of Entomology faculty member who has agreed to serve as their mentor. Contact the Entomology Honors Director, Dr. William Lamp (lamp@umd.edu) for more information. Participants in the Entomology Honors Program are eligible for the Ernest N. Cory Undergraduate Scholarship.

Environmental Science and Policy (ENSP)

College of Agriculture and Natural Resources
0220 Symons Hall, 301-405-8571
www.ensp.umd.edu
jsull@umd.edu
Director: J. Sullivan (Interim Director)
Senior Lecturer: J. Goger (Senior Lecturer), J. Murrow (Lecturer)
Lecturers: G. Schnaar (Lecturer)

The Major

Environmental Science and Policy is a broadly multi-disciplinary, undergraduate major, drawing courses and faculty from 8 departments and three Colleges (the Colleges of Agriculture and Natural Resources; Behavioral and Social Sciences; Computer, Mathematical, and Natural Sciences).

New ENSP students begin in the College of Agriculture and Natural Resources, where they will be guided through a structured, exploratory advising process. ENSP students are expected to declare a concentration by the end of their third semester in the program and, once they declare their concentration, will move administratively to the College and department sponsoring the concentration. There, they are advised by a faculty member in their discipline.

The ENSP faculty and staff aspire to provide a strong identity for the students enrolled in this major, and we encourage students to take advantage of the rich resources available at a Research I Public University. Experiential learning through research, internships, and study abroad is strongly encouraged.

Program Objectives

The curriculum of Environmental Science and Policy comprises an introductory core of lower-level courses in environmental science, environmental policy, biology, chemistry, earth sciences, geography, economics, calculus, and statistics. This is followed by in-depth and focused training in one of eleven areas of concentration in biological resources, earth systems, or the human dimensions of the field; and two upper-level courses in applied science and policy. The educational philosophy of the program is to train students broadly using a multi-disciplinary approach at the introductory level so that they are exposed to the myriad ways there are to learn about environmental systems and to address human-environment issues. This introductory approach precedes the concentration in which the students are prepared for post-graduate study or work in a discipline-based field. The combination of the lower-level core courses and upper-

level depth in a concentration prepares graduates to work and study independently or as members of teams in which they will be asked to be experts in one area, while understanding and using effectively other natural and social science knowledge and investigative approaches.

Program Learning Outcomes

- **Utilize and integrate knowledge and understanding of natural and social sciences.**
- **Depth and knowledge in an area of concentration.**
- **Readiness for full-time employment and grad school**

Admission to the Major

Incoming students who wish to enter ENSP may do so by selecting ENSP-Undeclared (Science) or ENSP-Undeclared (Policy) on their application for admission. On-campus students may declare ENSP during a meeting with the Assistant Director. Please review the ENSP website at www.ensp.umd.edu to learn about the program and its requirements prior to your first advising meeting.

Requirements for the Major

ENSP Core

1. Two introductory courses and three credits each semester, emphasizing Environmental Science in ENSP101 and Environmental Policy in ENSP102.

2. At least one course each from **four** of the following **five** groups:
   a. Biology (BSCI160&161)
   b. Chemistry (CHEM131/132)
   c. Earth Sciences (AOSC200/201, ENST200, GEOG201/211, GEOL100/110, GEOL120/110)
   d. Economics (AREC240, AREC241, ECON200)
   e. Geography (GEOG130, 140, 170, 202)

3. One semester of Calculus (MATH130, MATH140 or MATH120)

4. One semester of Statistics (BIOM301, ECON321, PSYC200, SOCY201, STAT400)

5. One course in Applied Environmental Science and Policy (ENSP305, ENSP330, ENSP340, ENSP342, ENSP350), to be taken in the junior or senior year.

6. The Capstone course (ENSP400 in the senior year)

Areas of Concentration

Biodiversity and Conservation Biology; Environment and Agriculture; Environmental Economics; Environmental Geosciences and Restoration; Environmental Politics and Policy; Global Environmental Change; Land Use; Marine and Coastal Management; Society and Environmental Issues; Soil, Water, and Land Resources; Wildlife Ecology and Management. *Changes may occur in concentrations. Students should consult the program office or visit the ENSP web site (*www.ensp.umd.edu*) for updated information.*

Grading Policy

Students who entered the Environmental Science and Policy Program (ENSP) in spring 2002, and thereafter, are required to earn grades of "C-" or higher in all courses taken within the ENSP core, in all required courses, and restricted electives of the selected area of concentration.

Advising

Advising is mandatory for all ENSP students in all areas of concentration, regardless of GPA, concentration, or credit level. We want to help you meet program requirements while achieving your academic and career goals. Refer to the ENSP webpage at www.ensp.umd.edu to find advisor assignments.

Undergraduate Research Experiences

We encourage all interested students to gain research experience. Many beginning ENSP students gain their first research experience by participating in the Maryland Student Researchers Program, which is coordinated by the Maryland Center for Undergraduate Research. More advanced students gain research experience working with their faculty members; in a field assistantship at the USDA - Beltsville Agricultural Research Center or the US FWS - Patuxent Wildlife Research Refuge; or by participating in an NSF-sponsored Research Experience for Undergraduates (REU). Additionally, highly motivated and capable students are encouraged to enroll in Honors-in-ENSP to pursue a self-directed, individual project. Details about all of these opportunities are available on our website.

Internships

Practical experience is an important part of learning. Whether gained by volunteering, clubs, internships, and/or research -- all experience contributes to students' professional development, helps determine what they enjoy doing, and makes classwork more meaningful. ENSP maintains an extensive list of internship opportunities on its website (www.ensp.umd.edu) and students receive weekly listserv announcements generated from the Advising Blog (http://www.enspadvisingnews.blogspot.com). Six of ENSP's concentrations require an internship; and most ENSP students complete at least two such experiences. To earn credit for an internship, review program requirements on the program webpage and contact the Assistant

Director at (301)405-8571 regarding ENSP386 - Internship in Environmental Science and Policy.

Honors Program

The Honors Program in Environmental Science and Policy provides energetic and capable undergraduates the opportunity to engage in independent study. Interested students must have 45-75 credits at the time of application; a cumulative GPA of 3.25 or higher; and a 3.5 or higher in all courses required for ENSP. Transfer students with equivalent academic records are also encouraged to apply. All students who meet the application requirements are eligible to apply; they need not have been a member of University Honors Program. The research will be conducted under the supervision of a faculty mentor, usually in the student's area of concentration, and will result in an Honors thesis. More information about admission, program requirements, and academic resources is available on the website (www.ensp.umd.edu).

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

ENVIRONMENTAL SCIENCE AND TECHNOLOGY (ENST)

College of Agriculture and Natural Resources
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
shannonp@umd.edu
Chair: William Bowerman
Professors: A. Baldwin (Prof), W. Bowerman (Prof & Chair), F. Coale, R. Harrell, R. Hill, M. Kearney (Prof), M. Rabenhorst, A. Shirmohammadi (Prof, Affiliate Prof, Prof & Assoc Dean), R. Tjaden (Principal Agent), R. Weil
Associate Professors: G. Felton, P. Kangas, P. Leisnham, B. Momen, B. Needelman, D. Tilley
Assistant Professors: S. Lansing, M. Negahban-Azar (Asst Prof), M. Pavao-Zuckerman (Asst Prof), W. Peer (Asst Prof, Aff Asst Prof), S. Yarwood (Asst Prof), L. Yonkos (Asst Prof)
Lecturers: S. Pederson (Lecturer)
Affiliate Professors: R. Friedel (Prof, Affiliate Prof)
Adjunct Professors: E. Landa (Adjunct Prof), P. Tamboli
Research Scientist: D. Fisher, J. Izursa (Fac Asst)
Associate Research Scientist: J. Riter (Res Assoc), P. Steinhilber (Ext Assoc)
Assistant Research Professor: J. Li (Post-Doc Assoc)
Professors Emeriti: D. Fanning (Prof Emeritus), R. Weismiller

The Major

The Environmental Science and Technology major prepares students for graduate study and careers focusing on understanding the natural and built environments and resolving environmental problems and concerns for the benefit of humans and ecosystems. Specifically, the program encompasses impacts of human society on the natural environment, the effects of environmental conditions on humans and ecosystems, science-based management of ecosystems, watershed and soil-related processes related to environmental quality, and designing solutions to sustainably improve environmental quality of air, water, soil, and biological communities. The ENST major is a science- and math-based curriculum leading to a B.S. degree in Environmental Science and Technology with concentrations in Ecological Technology Design, Environmental Health, Soil and Watershed Science, or Natural Resources Management. These concentrations share a foundation in science and mathematics and offer specialization through restricted and free electives. The group of courses required for the concentrations are designed to provide students with a fundamental understanding of environmental systems and issues and the multidisciplinary quantitative design and analytical tools necessary to solve complex environmental problems. Requirements for the four concentrations are listed separately under the main ENST entry. Additionally, a minor in Soil Science is also available in the Department of Environmental Science and Technology. These requirements are listed below.

For future updates and exciting changes, please visit our website at www.enst.umd.edu.

Requirements for the Minor

Soil Science
The minor will provide students with a sophisticated understanding of the soil resources, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications.

All courses presented for the minor must be passed with a grade of "C-" or better. Declared majors in the Soil and Watershed concentration of ENST, Conservation of Soil, Water and Environment Area of Concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Sciences.

Advising system for the minor:
The ENST Department has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least twice a year.

Curriculum:

ENST 200	Fundamentals of Soil Science	4

Select 13 credits from the ten courses listed below. At least two courses must be from Group A.

Group A - Underlying Principles

ENST411	Principles of Soil Fertility	3
ENST414	Soil Morphology, Genesis & Classification	4
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	4
ENST422	Soil Biochemistry and Microbial Ecology	3

Group B - Applications

ENST308	Field Soil Morphology	1
ENST423	Soil-Water Pollution	3
ENST430	Wetland Soils	3

Total Credits: A minimum of 17 credits are required to complete this minor.

Students attempting this minor will need MATH113 or higher. There are a total of 17 required credits in ENST classes, plus a 4 credit CHEM prerequisite. Depending on the pre-requisites needed, and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.

This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Horticulture and Crop Production, Animal Science, Landscape Architecture, Parks and Planning, Bioengineering, Civil Engineering, Environmental Engineering, Environmental Science and Technology, Natural Resources Management.

Advising

The ENST Department has mandatory advising for each of its concentrations. Students are required to meet with their advisor at least once per semester. Please contact Shannon Pederson at 301-405-1193 or shannonp@umd.edu for more information.

Internships

The ENST curricula consist of a broad set of background courses in environmental science, electives in applications, and upper-level field courses that synthesize the major. Students gain hands-on learning experience during their **required** internship.

Student Societies and Professional Organizations

RESTORE, the ENST student-run club, provides members with the opportunity to participate in educational, service, recreational, and social activities. They gain information that better prepares

them for the work force, while making a positive contribution to the field of Environmental Science and Technology as well as the community.

Certifications & Professional Societies

An important aspect of professional development is earning and maintaining certification in your field. The ENST department strives to provide courses and degrees that prepare you for certification exams and aid in satisfying other requirements for professional certifications. Some relevant certifications are listed below and details can be found at www.enst.umd.edu. Membership in professional societies is an excellent method to develop a professional network and stay up to date on developments in your field.

- OSHA HAZWOPER (https://www.osha.gov/html/faq-hazwoper.html)
- LEED Certifications (http://www.usgbc.org/credentials)
- Soils Field and Laboratory Technician (http://wacel.org/fmi/xsl/wacel/techcert.xsl)
- Certified Professional Soil Scientist (https://www.soils.org/certifications/become-certified)
- Certified Professional Agronomist (https://agronomy.org/certifications)
- Certified Crop Advisor (https://www.certifiedcropadviser.org/)
- Certified Ecological Designer (http://www.ecoeng.org/certification/certification.html)
- Professional Wetland Scientist (http://www.wetlandcert.org/overview.html)
- Ecologist (http://www.esa.org/esa/?page_id=181)
- Certified Wildlife Biologist (http://wildlife.org/)
- Certified Fisheries Professional (http://fisheries.org/)
- Certified Forester (http://www.safnet.org/certifiedforester/becomecertifiedforester.cfm)
- Certified Natural Resources Manager (http://www.safnet.org/certifiedforester/becomecertifiedforester.cfm)
- Erosion and Sediment Control Certification (http://www.sha.maryland.gov/Index.aspx?PageId=56)

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Additionally, ENST students are encouraged to apply for internships available to them through the College of Agriculture & Natural Resources. More details can be found here: http://agnr.umd.edu/students/scholarships/current-student-transfer-scholarship-application

Environmental Science and Technology: Concentration in Ecological Technology Design (ENST)

College of Agriculture and Natural Resources
1457 Animal Sciences Building, 301-405-1193

www.enst.umd.edu
shannonp@umd.edu

The Major

The ENST concentration in Ecological Technology Design prepares students for integrating natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability. The science and applications of using natural systems, processes and organisms to address environmental issues has evolved during the last few decades to a mature level whereby there are strong employment opportunities for graduates that are cross-educated in ecology and technology. Examples of eco-technological applications include restoration of urban and rural streams, creation of wastewater treatment wetlands, design of raingardens and bioretention systems for low-impact stormwater management, design of eco-industrial parks, life cycle assessment of products for improved environmental performance, bioremediation and phytoremediation of contaminated groundwater, ecological systems for by-product recovery, and filtration of contaminated air with bioreactors. The curriculum consists of a broad set of background courses in environmental science, electives in applications of Ecological Technology Design, and upper-level courses that synthesize the major. Hands-on design experience is included in required internship and practicum courses.

Requirements for the Major

This program requires a total of 120 credit for a Bachelor of Science, including the general education program course credits, required major credits; Technology and Ecosystem elective credits, and free elective credits.

Science and Math Fundamentals Required (50 credits):

ENST200	Fundamentals of Soil Science	4
ENST233	Introduction to Environmental Health	3
ENST360	Ecosystem Ecology	4
ENST389	Internship in Environmental Science & Technology	3
ENST471	Capstone I	2
ENST472	Capstone II	3
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
CHEM131/132	Fund. General Chemistry & Lab	4
CHEM231/232	Organic Chemistry I & Lab	4
MATH140 **or**	Calculus I **or**	4
MATH120	Elementary Calculus I	4
MATH141**or**	Calculus II **or**	4
MATH121	Elementary Calculus II	4
PHYS121	Fundamentals of Physics I	4
BIOM301	Introduction to Biometrics	3

Depth (9 credits):

ENST405	Energy and Environment	3
ENST481	Ecological Design	3
ENST410	Ecosystem Services: An Integrated Analysis	3

Computational Techniques (2 courses - 6 credits):

GEOG373	Geographic Information Systems	3
ENST281	Computer Aided Design in Ecology	3

Applications (2 courses - 6 credits):

Choose 2 courses from the list below:

ENST415	Renewable Energy	3
ENST452	Wetland Creation and Restoration	3
ENST443	Industrial Ecology	3
ENST452	Wetland Creation and Restoration	3
ENST477	Design for Urban Water and Energy	3
GEOL453	Ecosystem Restoration	3

Technology and Ecosystem Electives
Technology Electives (at least 6 credits[1]):

ARCH450	Introduction to Urban Planning	3
ENST415	Renewable Energy	3
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	3
ENST423	Soil-Water Pollution	3
ENST441	Sustainable Agriculture	3
ENST443	Industrial Ecology	3
ENST452	Wetland Creation and Restoration	3
ENST453	Watershed Science: Water balance, Open Channel Flow, and Near Surface Hydrology	3
ENST489Z	Water management in Urban Environment	3
GEOG372	Remote Sensing	3
GEOG473	Geographic Information Systems and Spatial Analysis	3
ENST499	Special Topics in Environmental Science and Technology	3
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3

Ecosystem Electives (at least 6 credits[1]):

BSCI363	The Biology of Conservation and Extinction	3
BSCI373	Natural History of the Chesapeake Bay	3
BSCI464	Microbial Ecology	3

BSCI460/461	Plant Ecology & Lab	5
BSCI467	Freshwater Biology	3
ENST314	Fisheries Sustainability and Management	4
ENST334	Environmental Toxicology	3
ENST422	Soil Biochemistry and Microbial Ecology	3
ENST423	Soil-Water Pollution	3
ENST430	Wetland Soils	3
ENST432	Environmental Microbiology	3
ENST450	Wetland Ecology	3
ENST451	Water Quality: Field and Lab Analysis Methods	3
ENST453	Watershed Science	3
ENST460	Principles of Wildlife Management	3
ENST461	Urban Wildlife Management	3
ENST462	Field Techniques in Wildlife Management	2
ENST479	Tropical Ecology and Resource Management	1-6
ENST499	Special Topics in Environmental Science and Technology	1-4
ENST452	Wetland Creation and Restoration	3
GEOG331	Introduction to Human Dimensions of Global Change	3
GEOL453	Ecosystem Restoration	3
LARC450	Environmental Resources	3
ENST407/PLSC400	Plant Physiology	3
PLSC471	Forest Ecology	3

[1]Courses satisfying restricted elective requirements can NOT count for Technology or Ecosystem electives. Also, Technology electives cannot be double-counted as Ecosystem electives, and vice-versa.

Advising

The ENST Department has mandatory advising for each of its concentration. Students are required to meet with their advisor at least once each semester. If you have any questions, please contact Shannon Pederson at shannonp@umd.edu.

Environmental Science and Technology: Environmental Health (ENST)

College of Agriculture and Natural Resources
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
shannonp@umd.edu

The Major

Environmental health is a broad and increasingly important field with wide ranging applications in the environmental science and public health fields. The field encompasses environmental factors and ecosystem functions that affect human health and the effects of human activities on

the ecosystem products and services we depend on. Example topics within the field include ecological risk analysis, environmental toxicology, environmental impact assessment, chemical fate and transport, human health risk assessment, industrial hygiene, air quality, environmental microbiology, food safety and security, biodiversity and human health, and children's environmental health. The Environmental Health concentration within the Department of Environmental Science and Technology offers a science-based curriculum that includes advanced studies in ecosystem health and environmental protection and the impacts of environmental degradation on human health.

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including the general education program course credits, required major credits, and free elective credits.

Science and Math Fundamentals Required (56-57 credits)

ENST200	Fundamentals of Soil Science	4
ENST233	Introduction to Environmental Health	3
ENST360	Ecosystem Ecology	4
ENST389	Internship	3
ENST471	Capstone I	2
ENST472	Capstone II	3
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
BSCI207	Principles of Biology III	3
BSCI223	General Microbiology	4
CHEM131/132	Fund. General Chemistry & Lab	4
CHEM231/232	Organic Chemistry I & Lab	4
CHEM241/242	Organic Chemistry II & Lab	4
MATH140 **or**	Calculus I **or**	4
MATH120	Elementary Calculus I	3
PHYS121 **or**	Fundamentals of Physics I **or**	4
PHYS117	Introduction to Physics	4
BIOM 301	Introduction to Biometrics	3

Concentration Depth (12 credits):

ENST333	Ecosystem Health and Protection	3
ENST334	Environmental Toxicology	3
ENST434 **or**	Toxic Contaminants: Sources, Fate & Effects **or**	3
ENST436	Emerging Environmental Threats	
ENST445	Ecological Risk Assessment	3

Ecosystem Health and Human Health Electives

Students will take approximately 6 credits each of Ecosystem Health and Human Health electives to tailor their program to their specific interests (total = 12 credits). Ecosystem Health electives cannot be double-counted as Human Health Electives, and vice-versa.

Ecosystem Health Electives (at least 6 credits)*:*

ANSC252	Introduction to the Diseases of Wildlife	3
AOSC200/201	Weather and Climate & Lab	4
AOSC434	Air Pollution	3
BSCI222	Principles of Genetics	4
BSCI330	Cell Biology and Physiology	4
BSCI447	General Endocrinology	3
BSCI467	Freshwater Biology	4
BSCI473	Marine Ecology	3
CHEM271/272	General Chemistry and Energetics & Bioanalytical Lab	4
ENST314	Fisheries Sustainability and Management	4
ENST405	Energy and Environment	3
ENST415	Renewable Energy	3
ENST421	Soil Chemistry	4
ENST422	Soil Biochemistry and Microbial Ecology	3
ENST423	Soil-Water Pollution	3
ENST430	Wetland Soils	3
ENST440	Crops, Soils and Civilization	3
ENST441	Sustainable Agriculture	3
ENST443	Industrial Ecology	3
ENST450	Wetland Ecology	3
ENST451	Water Quality: Field and Lab Analysis Methods	3
ENST460	Principles of Wildlife Management	3
ENST461	Urban Wildlife Management	3
ENST462	Field Techniques in Wildlife Management	2
ENST463	Wildlife Habitat and Population Modeling	3
ENST479	Tropical Ecology and Resource Management	1-6
ENST499	Special Topics in Environmental Science and Technology	1-4
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG415	Land Use, Climate Change, and Sustainability	3
GEOL452	Watershed and Wetland Hydrology	3
LARC450	Environmental Resources	3

Human Health Electives (at least 6 credits)*:*

BSCI201	Human Anatomy and Physiology I	4
BSCI202	Human Anatomy and Physiology II	4
BSCI330	Cell Biology and Physiology	4
BSCI417	Microbial Pathogenesis	3
BSCI422	Principles of Immunology	3

BSCI424	Pathogenic Microbiology	3
BSCI425	Epidemiology and Public Health	3
BSCI437	General Virology	3
BSCI440	Mammalian Physiology	4
ENST432	Environmental Microbiology	4
ENST436	Emerging Environmental Threats	3
ENST499	Special Topics in Environmental Science and Technology	1-4
GEOG331	Introduction to Human Dimensions of Global Change	3
GEOG431	Culture and Natural Resource Management	3
HLTH140	Personal and Community Health	3
HLTH230	Introduction to Health Behavior	3
HLTH371	Communicating Safety and Health	3
HLTH430	Health Education in the Workplace	3
NFSC430/434	Food Microbiology & Lab	6

Human Dimensions Area (at least 3 credits):

AREC240	Introduction to Economics and Environment
AREC332	Introduction to Natural Resource Policy
AREC365	World Hunger, Population, and Food Supplies
ANTH410	Theory of Practice of Health and Community Development
ANTH450	Theory and Practice of Environmental Anthropology
ENST410	Ecosystem Services: An Integrated Analysis
ENSP102	Introduction to Environmental Policy
ENSP330	Introduction to Environmental Law
ENSP340	Water: Science, Ethics, and Law
GEOG331	Introduction to Human Dimensions of Global Change
GEOG341	Culture and Natural Resource Management
LARC450	Environmental Resources
PHIL261	Philosophy of the Environment
PUAF300	Introduction to Sustainability
SOCY305	Scarcity and Modern Society
SOCY406	Globalization
SPHL400	Introduction to Global Health
SPHL401	History of Public Health
URSP250	The Sustainable City: Exploring Opportunities and Challenges

Advising

The ENST Department has mandatory advising for each of its concentration. Students are required to meet with their advisor at least once each semester. If you have any questions, please contact Shannon Pederson at shannonp@umd.edu.

Environmental Science and Technology: Natural Resources Management (ENST)

College of Agriculture and Natural Resources
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
shannonp@umd.edu

The Major

The goal of the Natural Resources Management Program is to teach students concepts of the environmentally sound use and management of natural resources. Ecosystems and human societies are linked in complex cycles and relationships between vegetation and wildlife, forests and cities, conservation and development. By learning to participate effectively within these cycles, we will help sustain a harmonious relationship between the environment and human activities. This concentration provides students with the knowledge and skills they need to work in such positions as wildlife biologists, environmental consultants, wetland scientists, forest managers, fisheries biologists, aquatic biologists, and nature interpreters.

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including the general education program course credits, required major credits, and free elective credits.

Science and Math Fundamentals Required (56-58 credits):

ENST200	Fundamentals of Soil Science	4
ENST233	Introduction to Environmental Health	3
ENST360	Ecosystem Ecology	4
ENST389	Internship in Environmental Science & Technology	3
ENST471	Capstone I	2
ENST472	Capstone II	3
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
CHEM131/132	Fund. General Chemistry & Lab	4
CHEM231/232	Organic Chemistry I & Lab	4
MATH140 **or**	Calculus I **or**	3-4
MATH120	Elementary Calculus I	
PHYS121 **or**	Fundamentals of Physics I **or**	4
PHYS117	Introduction to Physics	
BIOM301	Introduction to Biometrics	3

Natural Resources Breadth (15-16 credits):

GEOG373	Geographic Information Systems	3
ENST214	Introduction to Fish and Wildlife	3
ENST406	Applied Forestry Practices	3
ENST450 or ENST453	Wetland Ecology (3) or Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology (3)	3
AREC240 or SOCY305	Introduction to Economics and the Environment (4) or Scarcity and Modern Society (3)	

Ecosystem Services (3 credits):

ENST410	Ecosystem Services: An Integrated Analysis	3

Human Dimensions (5 credits):

ENST404	Natural Resources and Environmental Ethics	3
ENST487	Environmental Conflicts and Decision Making	2

Resource Management and Science Electives

Students will take approximately 6 credits each of Resource Management and Resource Science electives to tailor their program to their specific interests for a total of 12 credits. Resource Management electives cannot be double-counted as Resource Science Electives, and vice-versa. This is not an exhaustive list of electives; other science and management courses can be substituted with advisor approval.

Resource Management Electives (6 credits):

ANSC453	Animal Welfare and Bioethics	3
ANTH450	Theory and Practice of Environmental Anthropology	3
AREC365	World Hunger, Population, and Food Supplies	3
AREC445	Ag. Development, Population Growth and the Environment	3
BSCI207	Principles of Biology III	3
BSCI334/BSCI335	Mammalogy & Mammalogy Laboratory	4
BSCI363	The Biology of Conservation and Extinction	3
BSCI366	Biodiversity Issues in Conservation Management	3
ECON315	Economic Development of Underdeveloped Areas	3
ENST314	Fisheries Sustainability and Management	3
ENST405	Energy and Environment	3
ENST423	Soil-Water Pollution	3
ENST440	Crops, Soils and Civilization	3
ENST441	Sustainable Agriculture	3
ENST444	Restoration Ecology	3
ENST460	Principles of Wildlife Management	3
ENST461	Urban Wildlife Management	3

ENST462	Field Techniques in Wildlife Management	2
ENST463	Wildlife Habitat and Resource Modeling	3
ENST479	Tropical Ecology and Resource Management	3
GEOG340	Geomorphology	3
GEOG372	Remote Sensing	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	3
GEOL437	Global Climate Change: Past and Present	3
LARC450	Environmental Resources	3
LARC451***	Sustainable Communities	1-6
PLSC171	Introduction to Urban Forestry	3
PLSC201	Plant Structure and Function	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes	3
PLSC471	Forest Ecology	3

Resource Science Electives (6 credits):

ANSC252	Introduction to the Diseases of Wildlife	3
ANSC452	Avian Physiology	3
BSCI360	Principles of Animal Behavior	3
BSCI362	Ecology of Marsh and Dune Vegetation	2
BSCI373	Natural History of the Chesapeake Bay	3
BSCI374	Chesapeake Bay Laboratory	2
BSCI375	Biological Oceanography	3
BSCI440	Mammalian Physiology	4
BSCI441	Mammalian Physiology Laboratory	2
BSCI442	Plant Physiology	4
BSCI462	Population Ecology	3
BSCI463	Laboratory and Field Ecology	2
BSCI464	Microbial Ecology	3
BSCI467	Freshwater Biology	4
BSCI473	Marine Ecology	3
BSCI481	Insect Diversity and Classification	4
BSCI493	Medicinal and Poisonous Plants	3
ENST301-3	Field Soil Morphology	1-3
ENST414	Soil Morphology, Genesis and Classification	4
ENST421	Soil Chemistry	4
ENST422	Soil Biochemistry and Microbial Ecology	3
ENST430	Wetland Soils	3
ENST450	Wetland Ecology	3
ENST451	Water Quality: Field and Lab Analysis Methods	3
GEOG345	Introduction to Climatology	3
GEOG440	Advanced Geomorphology	3
GEOL444	Low Temperature Geochemistry	4
GEOL451	Groundwater	3

GEOL452	Watershed and Wetland Hydrology	3
PLSC453	Weed Science	3

***Must take at least one other additional course, 6 credits of LARC 451 does not fulfill requirement.

Advising

The ENST Department has mandatory advising for each of its concentration. Students are required to meet with their advisor at least once each semester. If you have any questions, please contact Shannon Pederson at shannonp@umd.edu.

Environmental Science and Technology: Concentration in Soil and Watershed Science (ENST)

College of Agriculture and Natural Resources
1457 Animal Sciences Building, 301-405-1193
www.enst.umd.edu
shannonp@umd.edu

The Major

The Soil and Watershed Science concentration enables students to understand the complex ways in which aquatic and terrestrial ecosystems are influenced by soil properties and processes and land management decisions. The soil performs such critical ecological functions as supplying and purifying water, recycling wastes, nurturing plants, modifying the atmosphere by emitting or sequestering gases and particulates, providing habitat for the most diverse biological communities on Earth, and serving as a medium for human engineering projects.

The concentration in Soil and Watershed Science in ENST provides students with one of the top soil science programs in the nation. The curriculum prepares graduates for work in variety of careers addressing natural resource and environmental issues and provides a rigorous science background for those planning to pursue post-graduate degrees in environmental sciences, soil science, watershed processes, and related fields. Students graduating from this program will make valuable contributions to society as they pursue challenging careers critical to the protection of the environment. In addition to pursuing advanced degrees, graduates may work in both the private and public sectors performing such services as soil mapping, wetland delineation, land conservation planning, forestry, waste management, farm advising, international development, and consulting in environmental, construction, and landscape architecture areas. Graduates from the Soil and Watershed Science concentration will be qualified to take the national exam to become a Certified Professional Soil Scientist (CPSS).

Requirements for the Major

This program requires a total of 120 credits for a Bachelor of Science, including the general education program course credits, required major credits, and free elective credits.

Science and Math Fundamentals Required (53-54 credits):

ENST200	Fundamentals of Soil Science	4
ENST233	Introduction to Environmental Health	3
ENST360	Ecosystem Ecology	4
ENST389	Internship in Environmental Science & Technology	3
ENST471	Capstone I	2
ENST472	Capstone II	3
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
CHEM131/132	Fund. General Chemistry & Lab	4
CHEM231/232	Organic Chemistry I & Lab	4
MATH140 **or**	Calculus I ***or***	3-4
MATH120	Elementary Calculus I	
PHYS121 ***or***	Fundamentals of Physics I ***or***	4
PHYS117	Introduction to Physics	
BIOM301	Introduction to Biometrics	3
PLSC100	Introduction to Horticulture ***or***	4
or PLSC101	Introductory Crop Science	
GEOL100/110	Physical Geology and Lab	4

Fundamental Soil Science Required (14 credits):

ENST414	Soil Morphology, Genesis and Classification	4
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	4
ENST422	Soil Biochemistry and Microbial Ecology	3

Technical Electives (3-4 courses-9 credits):

ENST301	Field Soil Morphology I	1
ENST302	Field Soil Morphology II	1
ENST303	Field Soil Morphology III	1
ENST309	Advanced Field Soil Morphology	1
ENST411	Principles of Soil Fertility	3
ENST423	Soil-Water Pollution	3
ENST424	Field Study in Soil Morphology	4
ENST427	Nonpoint Source Pollution Assessment Techniques	
ENST430	Wetland Soils	3
ENST453	Watershed Science	3
GEOG373	Geographic Information Systems	3

Breadth Electives (2 courses-6-7 credits):

AREC365	World Hunger, Population, and Food Supply	3
ENST407/PLSC400	Environmental Plant Physiology	3
ENST410	Ecosystem Services: An Integrated Analysis	3
ENST432	Environmental Microbiology	3
ENST440	Crops, Soils and Civilization	3
ENST441	Sustainable Agriculture	3
ENST450	Wetland Ecology	3
ENST451	Water Quality: Field and Lab Analysis Methods	3
GEOL340	Geomorphology	3
GEOL451	Groundwater	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL453	Ecosystem Restoration	3

Advising

The ENST Department has mandatory advising for each of its concentration. Students are required to meet with their advisor at least once each semester. If you have any questions, please contact Shannon Pederson at shannonp@umd.edu.

Family Science (FMSC)

School of Public Health
1142 School of Public Health, Bldg. 255, 301-405-3672
www.sph.umd.edu/fmsc
fmsc@umd.edu
Chair: E. Anderson (Prof & Chair)
Professors: N. Epstein, S. Quinn
Associate Professors: J. Kim (Assoc Prof & Family Finance Specialist, Maryland Extension), L. Leslie, M. Mokhtari, K. Roy, E. Shenassa, M. Smith Bynum
Assistant Professors: G. Hurtado Choque (Asst Prof & Family Health Specialist, Maryland Extension), M. Jones, A. Lewin, M. Mittal, J. Steinberg, M. Thoma
Lecturers: W. Knight, K.Van Putten-Gardner, E. Resnick, C. Schull, K. Tripp, R. Zeiger
Affiliate Professors: X. He (Asst Prof, EPIB)
Adjunct Associate Professors: K. Schoendorf
Adjunct Assistant Professors: K. Grantz, C. Lutter (Adjunct Clinical Prof)
Clinical Professor: A. Robinson (Director, Karabelle Pizzigati Endowed Professorship in Adv for Children, Youth and Families)
Assistant Clinical Professor: P. Barros Gomes (Director, Center for Healthy Families), E. Maring (Director of Global Health Initiatives)
Professors Emeriti: B. Braun, S. Hofferth, S. Koblinsky, N. Myricks (Assoc Prof), S. Randolph

(Assoc Prof), R. Rubin (Assoc Prof), J. Wallen (Assoc Prof)
Visiting Faculty: F. Goldscheider (College Park Professor), S. Kessel (Professor of the Practice)

The Major

The Family Science major provides an interdisciplinary focus on the study of families, health and the problems they face in contemporary society. The major offers excellent training in scientific methods to understand family development, behavior, strengths and challenges. Students learn to describe, explain, and improve the quality of family life through education, applied research, legal and policy analysis, and human services program management. Majors acquire skills in writing, speaking, and computing across the Family Science curriculum. As part of the required research course, all students design a study, collect data, prepare, and present an empirical research project prior to graduation.

The Family Science major prepares students for many career paths in areas including family therapy, public health, family life education, social work, law, policy analysis, human services, and family mediation. A wide variety of employment opportunities exist for Family Science graduates in direct service and management positions in government, non-profit, and private agencies. The major also provides excellent preparation for graduate study in family science, marriage and family therapy, social work, professional schools such as medicine, dentistry and law, public health, psychology, human resource management, and other social science disciplines.

Courses offered by this department are listed under the acronym **FMSC**.

Program Learning Outcomes

1. Students evaluate policy and programmatic interventions to address social and behavioral factors that influence family well-being.
2. Students demonstrate the principles of cultural competence that shape the experiences and disparities of vulnerable families and populations.
3. Students create a hypothesis, conduct research, prepare data and present a research project that addresses a significant issue of family well-being.
4. Students demonstrate basic knowledge of family theories and apply the knowledge to diverse contexts.
5. Students analyze and critique the range of social structures and systems including health, legal, and economic that affect family well-being.

Academic Programs and Departmental Facilities

The Family Science program is located in the UMD School of Public Health which supports our faculty and students' public health-focused program and encourages cross-collaborations with other SPH departments. FMSC's main office, room 1142, is open year-round (except university holidays), Monday through Friday, from 8:30 am to 4:30 pm. Students are encouraged to drop by for: advising or information about undergraduate programs, department courses and internships;

faculty meetings and mentoring; and ways to get involved in departmental research and student activities.

Admission to the Major

Upper-level students who wish to change or declare a major in Family Science can only do so through a Change of Major Workshop. To register for a workshop, visit https://sph.umd.edu/content/become-sph-major. Students must register in advance in order to attend a Change of Major Workshop. Freshman or admitted high school seniors may declare the FMSC major at orientation.

Requirements for the Major

		Credits
	Required Courses - Major subject area *A grade of C- or better is required in these courses.*	
FMSC302	Research Methods	3
FMSC310	Maternal, Child and Family Health	3
FMSC330	Family Theories and Patterns	3
FMSC332	Children in Families	3
FMSC381	Poverty, Affluence, and Families	3
FMSC383	Delivery of Human Services to Families	3
FMSC432	Adult Development and Aging in Families	3
FMSC477	Internship and Analysis in Family Science	3
FMSC487	Legal Aspects of Family Problems	3
	Required Courses - Department Electives *A grade of "C-" or better is required in these courses.*	
	Six additional FMSC departmental credits*+ ** With the exception of independent study (FMSC399, FMSC498) and field work (FMSC386, FMSC387).* *+ FMSC105 and FMSC298F cannot be used to meet this requirement unless they are taken before the student completes 60 credits.*	6
	Additional Courses Required of all majors *All students must earn a grade of "C-" or better in all courses applied toward completion of the major.*	
PSYC100	Introduction to Psychology	3
	One from:	3-4
FMSC290	Family Economics	
ECON200	Principles of Microeconomics	
ECON201	Principles of Macroeconomics	
	One from:	3

EDMS451	Introduction to Educational Statistics	
STAT100	Elementary Statistics and Probability	
	One from:	3
SOCY100	Introduction to Sociology	
SOCY105	Introduction to Contemporary Social Problems	
	One from:	3
COMM100	Foundations of Speech Communication	
COMM107	Speech Communication: Principles and Practices	
COMM125	Introduction to Interpersonal Communication	
COMM200	Critical Thinking and Speaking	
INAG110	Oral Communication	

Advising

The Family Science Department provides a multi-tier advising system that will help students design and carry out a program of study best suited to their interests and needs. Several advisors are available, depending on student need: the Family Science Undergraduate Program Director, Kay Myat; Faculty Advisors; and SPH advisors at the School of Public Health Center for Academic Success and Achievement (CASA).

For general questions and consultation about degree requirements, the FMSC Undergraduate Program Director, Kay Myat, is available in the main office (1142KK School of Public Health) as a first point of contact. The Undergraduate Program Director also conducts change of major workshops and orientations for students in the major.

For more information, or to schedule an appointment with the Undergraduate Program Director visit http://sph.umd.edu/department/fmsc/advising.

Undergraduate Research Experiences

The Department has an active Undergraduate Research Assistant Program, which enables students to learn from and work with world-class scholars on family issues. Family Science undergraduates volunteer to assist Department faculty with their ongoing research projects on topics including:

- Adolescent Parenting
- AIDS Education
- Child Care
- Couple Relationships

- Ethnicity & Families
- Family and Community Violence
- Family Financial Education
- Family Law
- Family Policy
- Fathering
- Maternal and Child Health
- Mental Health/Addiction/Family Therapy
- Military Families
- Health
- Homeless Families
- Interracial Marriages
- Parenting
- Poverty
- Rural Families
- Women Veterans
- Work and Family

Undergraduate students who participate in Family Science research may also participate in the Maryland Center for Undergraduate Research and serve as research assistants. These research opportunities particularly benefit students who are applying to graduate school.

The Department also participates in several other undergraduate research programs, such as the Senior Summer Scholars Program and the Ronald E. McNair Post-Baccalaureate Achievement Program. Students may also set an appointment with Undergraduate Program Director to answer questions and learn about current undergraduate research projects in Family Science.

Internships

All Family Science majors are required to complete an internship experience prior to graduation. The internship program is a capstone project designed to integrate department and other coursework with a real-time work experience that focuses on healthy families. In addition to a 120-hour semester-long field placement, students are required to attend a capstone seminar (FMSC477). Students in the seminar integrate classroom theory with their field placement and share work-related activities, broadening their exposure to work in the discipline of Family Science and their knowledge of specific career opportunities. Each approved internship must have a significant focus on the family unit, incorporating the needs and concerns of the family in addition to those of the individual. Interns will be expected to utilize Family Science theories and concepts throughout the accompanying seminar to evaluate their internship experience. Therefore, it is essential that the internship responsibilities relate directly to family.

Students who need help deciding on an internship have access to the **FMSC Internship Database,** which contains listings of organizations that have requested our students along with those where Family Science students have completed internships.

The internship course is open to all FMSC majors who have completed FMSC330 and FMSC383 plus a minimum of six additional credits of FMSC coursework. The internship contract forms and supervisor's letter are available online at https://sph.umd.edu/sites/default/files/files/fmsc/FMSC477%20Internship%20Contract_FINAL.pdf

Students may also pick up the documents in the main FMSC office, 1142 School of Public Health Building.

There are strict deadlines for turning in completed contracts to the FMSC office:

Spring Internship contract: Due December 1

Summer & Fall Internship contract: Due May 1

Honors Program

The FMSC Honors Program is designed to provide academically talented students with a more advanced and enriching educational experience in Family Sciences. The Honors Program gives students an opportunity to participate in scholarly independent study, interact with FMSC faculty, and examine a range of intellectual topics in greater depth than is possible in the traditional Family Science program. Students enroll in special Honors courses, Honors option work in regular courses, and independent research. The program culminates with the preparation and possible presentation of a Senior Honors Thesis.

FMSC majors who are interested in this additional challenging educational experience and meet the following criteria, may apply to the FMSC Honors Program:

- A UMD GPA of 3.3 with at least 45 credits completed

- A FMSC GPA of 3.5 and
- Completed FMSC 290 with a grade of "B" or better and an additional three credits in FMSC

  OR

- ECON 200 and an additional six credits in FMSC

Students meeting the criteria and wishing to participate in the Honors Program must apply three semesters (not including summer) prior to graduation. More information and application forms are available on the FMSC web site or from the FMSC Honors Program Coordinator, Dr. Mia Smith Bynum at msbynum@umd.edu

Student Societies and Professional Organizations

Maryland Council on Family Relations (MCFR) is a student chapter of the National Council on Family Relations, a professional organization for family researchers, educators, and practitioners. The organization provides an opportunity for students to explore family issues, meet fellow students, and prepare for careers in teaching, research, policy analysis, or direct service to families. MCFR is open to all undergraduate and graduate Family Science students. For more information, please contact the MCFR Faculty Advisor, Kevin Roy

Phi Upsilon Omicron is a nationally recognized honor society focused toward observing academic excellence, enhancing qualities of leadership by providing opportunities for service, and encouraging lifelong learning and commitment in order to advance family and consumer sciences and related areas. Members participate in community service activities on campus and in the surrounding Metropolitan DC areas. They also collaborate with MCFR to conduct informative workshops for members and other Family Science students on academic skills development, stress management, graduate school, and potential career paths with a Family Science degree. The Gamma Lambda Chapter has a local alumni chapter to provide our members with networking and other resources. Other membership benefits include additional networking opportunities through regional and national meetings, scholarship and fellowship awards, honor cords at graduation, and leadership opportunities at the chapter, regional, and national levels. For more information please contact the FMSC Undergraduate Program Director, Kay Myat.

Scholarships and Financial Assistance

The Department of Family Science has several endowed scholarships that enable us to provide some assistance to meritorious students in our Family Science Program. Early in the spring semester the department announces the availability of the awards and begins the application process. Recipients are announced by May of each year. For more information visit http://sph.umd.edu/department/fmsc/department-family-science-scholarships.

For information about the current state and federal scholarship and financial aid opportunities, visit http://sph.umd.edu/department/fmsc/tuition-and-financial-support-0.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

FMSC nominates meritorious students for recognition at the annual SPH Convocation for many prestigious awards including Dean's Scholars awards, the Jerry Wrenn Scholarship awards and the Lester M. Fraley award. For more information on FMSC department Scholarships and Awards, please see the FMSC website at **http://sph.umd.edu/department/fmsc/about-us**

Film Studies (FILM)

College of Arts and Humanities
3212 Jimenez Hall, 301-405-4025
www.film.umd.edu
umdfilm@umd.edu
Director: E. Zakim (SLLC)
Professors: J. Auerbach (ENGL), P. Beicken (SLLC), J. Kuo (ARTH), V. Orlando (SLLC)
Associate Professors: V. Anishchenkova (SLLC), H. Baer (SLLC), C. Eades (SLLC), O. Gaycken (ENGL), S. Giovacchini (HIST), E. Papazian (SLLC)
Assistant Professors: L. Arsenjuk (SLLC), M. Resmini (SLLC)
Instructors: E. Robinson (CMLT)
Affiliate Professors: M. Collins (ENGL and CMLT), A. Eckstein (HIST), J. Hallett (CLAS), R. Igel (SLLC), A. Karimi-Hakkak (SLLC), R. Oster (SLLC), S. Parry-Giles (COMM), O. Wang (ENGL), J. Witzleben (MUSC)
Affiliate Associate Professors: M. Mason (SLLC), E. Merediz (SLLC), J. Naharro-Calderon (SLLC), Z. Nunes (ENGL and CMLT), J. Shannon (ARTH)
Affiliate Assistant Professors: M. Baillargeon (SLLC)
Professors Emeriti: R. Harrison (SLLC and CMLT), M. Lounsbury (AMST), P. Verdaguer (SLLC)

The Major

Film Studies is an interdisciplinary program in the Humanities that enables students to explore an influential global art form in its aesthetic, cultural, economic, historical, and technological dimensions. The major takes a critical, textual approach to film, emphasizing scholarly viewing, interpreting, and writing about moving images. It provides students with a solid background in theoretical, critical, and aesthetic aspects of the study of film, including the history of the medium and the analysis of national cinemas, always keeping in view questions of how new media have changed both cinema itself and the study of cinema. The Film Studies major brings together courses in cinema from varied nations, languages, and cultures and challenges students

to understand the systems of transnational exchange that have characterized this medium from its inception. Courses offered by this program may be found under the following acronyms: FILM, ENGL, SLLC.

Program Objectives

The Major in Film Studies teaches the fundamental skills required for a range of professional careers: critical thinking, historical awareness, research, information management, cogent development of ideas, and strong written and oral communication. Students will work toward competence in film analysis, critical viewing and writing, and visual literacy at a time when our culture is becoming increasingly dependent upon visual communication.

Program Learning Outcomes

- Students will be able to analyze and interpret film aesthetics and technical structures of editing, cinematography, and mise-en-scene.
- Students will be able to identify and analyze diverse genres and movements in the history of film.
- Students will be able to situate films produced in various parts of the world in relation to larger historical and cultural developments.
- Students will understand the various uses of the moving image in its relation to the political, economic, and social history of the world over the past century.
- Students will be able to conduct research in Film Studies and to write persuasively.

Requirements for the Major

The Film Studies major has four parts: a prerequisite course in Film Form (ENGL/FILM245), a two-course Film History and Theory Foundation (ENGL/FILM301 and 302), a six-course Film Criticism Core, and four Film Electives. The first two parts of the program assure that students have the necessary analytical tools and historical background to interpret diverse global cinematic traditions. The Film Criticism Core and Film Electives offer students the opportunity to explore genres, themes, and movements across different historical periods and to develop their skills in analysis, writing, and research.

GENERAL POLICIES

- The Film Studies major requires 39 credits (13 courses).
- A grade of "C-" or better is required in each of the courses making up the 39 credits of the major.
- Up to nine (9) credits may be taken at the 2xx-level.
- At least 6 of the 39 credits must be at the 4xx-level.

THE FILM STUDIES MAJOR REQUIRES 39 CREDITS, DISTRIBUTED AS FOLLOWS:

Film Form (3 credits)

- ENGL245/FILM245 Film Form and Culture (fulfils Gen Ed req. in Humanities)
    - Or SLLC283/FILM283: Introduction to Cinema Studies
    - Or equivalent by permission of department
- Film Studies majors must take FILM/ENGL245 before they take other 3xx or 4xx-level Film Studies courses. We recommend that it be taken no later than sophomore year.

Film History and Theory Foundation (6 credits)

- Prerequisite for both courses: ENGL245/FILM245 or SLLC283/FILM283.
- FILM301 Cinema History I: The Silent Era
- FILM302 Cinema History II: The Sound Era
- Students may take the two courses in any order.

Film Criticism Core Requirement (18 credits), distributed as follows:

- At least one course in this category must be taken at the 4xx-level.
- One course (3 credits) in Film Theories
- Two courses (6 credits) in Genres/Auteurs/Movements
- Two courses (6 credits) in National and International Cinemas
- One course (3 credits) in Documentary, Animation, Experimental Cinema or other Visual Media

For a list of courses that will satisfy each sub-category, please see www.film.umd.edu/major/courses.html.

Film Electives (12 credits)

Up to two courses in this category may be taken at the 2xx-level. At least one must be taken at the 4xx-level. Please consult the full list of courses accepted for the major: www.film.umd.edu/major/courses.html.

Option One: 12 credits, distributed as follows:

- Two courses (6 credits) from the Film Criticism category, any rubric
- Two courses (6 credits) from the Film Electives category

Option Two: 12 credits

Four courses (12 credits) in Film Electives, selected to create a coherent emphasis. The four courses should be selected in consultation with the Film Studies Advisor to allow students to

explore a specific area of interest or an area related to their future academic or professional plans.

Other Requirements for the Major

FILM 245 (Film Form and Culture) is a prerequisite for many 3xx-level courses in the major. Students are advised to complete that course early in their academic careers. Successful completion of FILM245 allows students to proceed to two courses required for the major: FILM 301 (Cinema History I: The Silent Era) and FILM 302 (Cinema History II: The Sound Era).

Advising

Academic advising is available throughout the year. Departmental academic advising is mandatory for all Film Studies majors each semester. Students should check Testudo (http://testudo.umd.edu/) for their registration date and schedule an advising appointment for at least one week in advance of their date. Advising appointments can be made via email: film-advising@umd.edu.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Internships

Film Studies offers students the opportunity to earn academic credit in connection with an internship, through FILM 388 (Experiential Learning). Admission to FILM 388 is by application only. See www.film.umd.edu for more details.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

FINANCE (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: S. Kroncke (Associate Chair), V. Maksimovic
Professors: G. Bakshi, S. Heston, A. Kyle, D. Madan, V. Maksimovic, L. Senbet, A. Triantis, H. Unal, R. Wermers

Associate Professors: M. Faulkender, M. Loewenstein, R. Mathews, N. Prabhala, L. Yang
Assistant Professors: M. Bustamante (Asst Prof), J. Cujean (Asst Prof), F. D'Acunto (Asst Prof), L. Fresard, W. Mullins (Asst Prof), A. Rossi (Asst Prof), S. Santosh (Asst Prof, Lecturer), Y. Wang
Lecturers: A. Ciafre (Lecturer), R. Guttridge (Lecturer), K. Hallows, D. Kass, E. Kiss, S. Kroncke, M. Li (Lecturer), T. Makaew (Lecturer), J. Pavlovsky (Lecturer), C. Rossi (Lecturer), S. Wallenstein (Lecturer), S. White
Adjunct Professors: C. Baiju (Lecturer), K. Brodkowitz (Lecturer), J. Campbell (Lecturer), M. Canzater (Lecturer), J. Colantuoni (Lecturer), D. Donovan (Lecturer), M. Grovic (Lecturer), U. Hewer (Lecturer, Adjunct Prof), B. Jain (Lecturer), C. Krosinsky (Lecturer), M. Lee (Lecturer), D. Malmquist (Adjunct Prof), J. Perfetti, J. Rinaldi (Lecturer), A. Sherman, K. Snow (Lecturer), G. Thoumi (Lecturer)
Professors Emeriti: J. Haslem (Prof Emeritus)
Visiting Faculty: X. Gao (Visit Asst Prof), M. Padhi (Visit Asst Prof)

The Major

Finance encompasses:

1. Corporate finance: The financial management of corporations
2. Investments: The management of securities and portfolios
3. Financial institutions and markets: The management of financial institutions and the study of their role in the economy

The Finance curriculum is designed to familiarize the student with the institutions, theory, and practice involved in the allocation of financial resources within the private sector. It provides an educational foundation for careers involving corporate financial analysis and management, investment analysis and portfolio management, investment banking, risk management, commercial banking, and international finance; it also provides a foundation for graduate study in business administration, economics, and law.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

BMGT343 Investments 3
BMGT440 Advanced Financial Management 3

Four of the following courses: 12 credits
BMGT342 Wall Street Finance
BMGT441 Fixed Income
BMGT442 Advanced Portfolio Management
BMGT443 Applied Equity Analysis and Portfolio Management
BMGT444 Futures and Options Contracts

BMGT445 Banking and Financial Institutions
BMGT446 International Finance
BMGT447 Computational Finance

1 of ECON 305/ECON 325 Intermediate Macroeconomic Theory & Policy or ECON306/ECON 326 Intermediate Microeconomic Theory

In addition, students can apply a maximum of one course (3cr) toward this requirement from:
BMGT349 Investment Fund Management: Lemma Senbet Fund
BMGT448 Special Topics in Finance
BMGT449 Investment Fund Management

One of the following courses: 3 credits
BMGT310 Intermediate Accounting I
BMGT313 Financial Statement Analysis
BMGT332 Operations Research For Management Decisions
BMGT430 Linear Statistical Models in Business
BMGT434 Introduction to Optimization

Total Finance Major Requirements 18 credits

Upper Level Economics Requirements for the Finance major
ECON330 Money and Banking **OR** BMGT341 Financial Markets 3 credits

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Fire Protection Engineering (ENFP)

A. James Clark School of Engineering

3106 JM Patterson Building, 301-405-3992
www.fpe.umd.edu
Chair: J. Milke
Professors: H. Baum (Res Prof), K. Isman (Clin Prof), J. Torero, A.C. Trouve, M. di Marzo
Associate Professors: A.W. Marshall, S.I. Stoliarov, P.B. Sunderland
Assistant Professors: M. Gollner
Lecturers: A. Kohout (Lecturer), N. Ryder
Affiliate Professors: E. Oran (Prof, Affiliate Prof)
Professors Emeriti: V. Brannigan, F. Mowrer (Assoc Prof Emeritus), J.G. Quintiere, S. Spivak

The Major

Fire Protection Engineering is concerned with the applications of scientific and technical principles to the dynamics, mitigation, and suppression of fire. This includes the effects of fire on people, on structures, on commodities, and on operations. The identification of fire hazards and their risk, relative to the cost of protection, is an important aspect of fire safety design.

The fire protection engineering student receives a fundamental engineering education involving the subjects of mathematics, physics, and chemistry. The program builds on other core engineering subjects of materials, fluid mechanics, thermodynamics and heat transfer with emphasis on principles and phenomena related to fire. Fluid mechanics includes applications to sprinkler design, suppression systems, and smoke movement. Heat transfer introduces the student to principles of evaporation for liquid fuels. The subject of combustion is introduced involving premixed and diffusion flames, ignition and flame spread, and burning processes. Laboratory experience is gained by being exposed to standard fire tests and measurements. Design procedures are emphasized for systems involving suppression, detection, alarm, and building safety requirements. The background and application of codes and standards are studied to prepare the student for practice in the field. System concepts of fire safety and methods of analysis are presented. A senior design or research project is required which gives the student an opportunity to explore issues beyond the normal classroom environment.

The Bachelor of Science in Fire Protection Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 415 North Charles Street, Baltimore, MD 21201, telephone: (410) 347-7700.

Program Objectives

The educational objectives of the undergraduate program in Fire Protection Engineering are to produce graduates who:

1. Practice fire protection engineering regionally, nationally and internationally in a broad range of modern professional settings;

2. Pursue advanced studies in fire protection engineering or related fields;

3. Actively participate in the development of engineering decisions on societal, environmental, economic and safety issues at the local or global levels;

4. Achieve professional certification and licensure; and

5. Maintain continual professional competency and practice ethically.

The practice of fire protection engineering has developed from the implementation and interpretation of codes and standards directed at fire safety. These safety codes contain technical information and prescriptions derived from experience and research. Research has also led to quantitative methods to assess aspects of fire and fire safety. Thus, fire protection engineers need

to be versed in the current technical requirements for fire safety and in the scientific principles that underlie fire and its interactions.

Program Learning Outcomes

1. Demonstrated ability to apply knowledge of math, engineering and science in addressing fire protection engineering issues making use of modern techniques, skills and engineering tools available in the professional practice.

2. Demonstrated ability to design experimental apparatus, experimental procedures and data analysis generating novel information and knowledge in fire science and engineering.

3. Demonstrated ability to design systems, processes and components relevant to the fire protection engineering practice or enhancing the performance and safety of the fire service personnel.

4. Demonstrated ability to perform in multi-disciplinary or multi-tasking teams.

5. Demonstrated ability to identify, formulate and solve engineering problems representative of those commonly encountered in the fire protection engineering practice.

6. Demonstrated understanding of the professional and ethical responsibilities associated with the practice of fire protection engineering.

7. Demonstrated ability to communicate effectively through written reports and technical presentations with fire protection engineers and with other relevant professional constituencies (AHJ, architectural firms, etc.).

8. Demonstrated knowledge of contemporary issues relevant to the fire engineering profession and broad understanding of the relevant societal issues impacted by the engineering solutions.

9. Demonstrated recognition of the need to engage in life-long learning and ability to maintain state of the art fire protection engineering knowledge and skills.

Academic Programs and Departmental Facilities

Our laboratories provide hands-on experience with standardized ASTM test procedures, more fundamental experiments, and large scale burn tests. Our computer laboratory has workstations enabled with the latest software for modeling fires, structures, and human behavior. Our student lounge is frequently used for student meetings and study sessions.

Admission to the Major

Admission requirements are identical to those set by the A. James Clark School of Engineering. (See A. James Clark School of Engineering section under the Colleges and Schools section of this site).

Requirements for the Major

In general, the curriculum is designed to give the student a grounding in the science and practice of fire safety. The field touches on many disciplines and its scientific basis is expanding. It is an engineering discipline that is still growing, and offers a variety of excellent career opportunities. These cover a wide spectrum involving safety assessment reviews, hazards analysis and research, loss prevention and regulatory issues.

	Freshman Year	**Credits First Sem**	**Credits Second Sem**
Gen Ed	General Education Requirements		6
ENGL101	English Composition	3	
CHEM135	General Chemistry for Engineers	3	
MATH140/141	Calculus I / Calculus II	4	4
ENES100	Introduction to Engineering Design	3	
ENES102	Mechanics I		3
PHYS161	General Physics I: Mechanics and Particle Dynamics		3
ENFP101	Hot Topics in Fire (optional)	(1)	
	Total	**14**	**16**

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
Gen Ed	General Education Requirements	3	
Gen Ed	Oral Communication		3
MATH206	Introduction to MATLAB	1	
MATH240	Linear Algebra, **or**		4
MATH241	Calculus III		
MATH246	Differential Equations	3	
PHYS260/261	General Physics II	4	
ENES220	Mechanics II		3
ENES221	Dynamics	3	
ENES232	Thermodynamics		3
ENFP250	Introduction to Life Safety Analysis	3	
ENFP300	Fire Protection Fluid Mechanics		3
	Total	**17**	**16**

	Junior Year	**Credits First Sem**	**Credits Second Sem**
Gen Ed	General Education Requirements	3	3
Elective	Approved Electives (STAT, ENFP, ENXX)	3	3
Elective	General Elective	3	

ENFP310	Water Based Fire Protection Systems Design	3	
ENFP312	Heat and Mass Transfer	3	
ENFP320	Fire Assessment Methods and Laboratory		4
ENFP350	Professional Development Seminar		1
ENFP440/627	Smoke Management and Fire Alarm Systems		3
	Total	**15**	**14**

	Senior Year	**Credits First Sem**	**Credits Second Sem**
Elective	Approved Electives (STAT, ENFP, ENXX)		6
ENGL393	Technical Writing	3	
ENFP405/621	Structural Fire Protection	3	
ENFP410/629L	Advanced Fire Suppression		3
ENFP411	Risk-Informed Performance Based Design		3
ENFP413/613	Advanced Life Safety Analysis	3	
ENFP415/651	Fire Dynamics	3	
ENFP425	Enclosure Fire Modeling	3	
ENFP426	Computational Methods in Fire Protection		3
	Total	**15**	**15**
	Total Credit Hours		**121**

Approved electives must include the following:
- One MATH or STAT 300+
- One ENFP 400+, and two ENXX 300+
- Two ENXX 3xx+ courses

Advising

Advising is required for all undergraduate students each semester prior to registering for classes. Please refer to http://www.fpe.umd.edu/undergrad/advising for more information.

Undergraduate Research Experiences

Many FPE undergraduates perform original research under the direction of a faculty member. These include analytical, experimental, and computational studies. The topics are chosen in discussions between the student and a faculty member. Students can perform research as a volunteer, for pay, or for credit (e.g., ENFP429 or ENFP489).

Fieldwork Opportunities

Information about fieldwork and summer employment is available in the department office, or visit http://www.enfp.umd.edu/employment/jobs.

Internships

Information about internships is available in the department office, or visit http://www.enfp.umd.edu/employment/jobs.

Co-op Programs

Information about co-op employment is available in the department office, or visit http://www.enfp.umd.edu/employment/jobs.

Honors Program

Qualified students in the department are eligible for participation in the A. James Clark School of Engineering honors program and may be invited to the Salamander Honorary Society of the Department of Fire Protection Engineering.

Student Societies and Professional Organizations

The University of Maryland student chapter of the Society of Fire Protection Engineers is an active professional society open to all interested FPE students. The department honor society, Salamander, is open to academically eligible juniors and seniors. Student membership in the National Fire Protection Association is also available. Information on these organizations may be obtained from the department office or at http://www.enfp.umd.edu/student-societies.

Scholarships and Financial Assistance

Numerous scholarships and grants are available to students in the department from organizational and corporate sponsors. Information is available on eligibility, financial terms, and retention criteria in the department office. The majority of the scholarships are for junior and senior students, but some scholarships are available for first- and second-year students. Additional information is available at http://www.enfp.umd.edu/undergrad/scholarships.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other University offices, participates in the awarding of scholarships to deserving students. For more information, visit: www.financialaid.umd.edu.

Awards and Recognition

Academic achievement awards are sponsored by the department and the student professional-honor societies. These awards are presented at the annual A. James Clark School of Engineering Honors and Awards ceremony. Eligibility criteria for these awards are available in the department office.

French Language and Literature (FREN)

College of Arts and Humanities
3106 JimÃ©nez Hall, 301-405-4025
www.french.umd.edu
Professors: J. Brami, H. Campangne, A. Frisch, C. Mossman, V. Orlando
Associate Professors: S. Benharrech, M. Scullen
Assistant Professors: M. Baillargeon
Lecturers: E. Cefalo
Professors Emeriti: M. Hage, R. Tarica, P. Verdaguer

The Major

The undergraduate major in French (FREN) is centered on the study of the French language and the literatures and cultures of the French and Francophone people. Our faculty members teach a wide variety of courses in culture, literature, linguistics, stylistics, cinema, civilization, the contemporary French and Francophone world, and women's studies.

Students who complete the requirements for the major can expect to be able to speak, read, write, and understand French at a level that would allow them to communicate with native speakers, to recognize and interpret the diverse cultural perspectives and products of the French-speaking world, and to be culturally sensitive members of society.

Students of French have the option of living in the Language House. University faculty-led programs in Nice (semester or year-long) and Montpellier (summer) are offered by the Department, and all students majoring in French are encouraged to participate in either, or both, of these programs as an integral part of their curriculum. Students may also consider a double major in French and another discipline, such as College of Arts and Humanities majors, Business, International relations, Economics, or Journalism.

Students can satisfy the ARHU Global Engagement Requirement by taking the appropriate French language course sequence (103>203), or by taking a higher level French course.

Students must take language acquisition courses sequentially, i.e., 103, 203, 204, 250, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

Advanced students of French may substitute 3xx or 4xx level electives for FREN204, 250, or 301, in consultation with the Advisor.

Program Learning Outcomes

- Demonstrate knowledge of the institutions, values, and cultural products of France and/or the francophone countries
- Demonstrate proficiency in oral expression in French
- Demonstrate proficiency in written expression in French

Placement in Courses

Please see: http://www.arhu.umd.edu/undergraduate/flpa.

Requirements for the Major

Required courses (36 credits):

FREN204	French Grammar and Composition	3
FREN250	Introduction to Cultural and Textual Analysis	3
FREN301	Composition and Style	3
FREN401	Writing with Style	3
	One from:	
FREN302	Translation: French to English	3
FREN303	Translation: English to French	3
	One from:	
FREN311	Advanced Oral Expression	3
FREN312	France Today	3
FREN399	Resident Director in Nice/Montpellier Course	3
	Also required:	
FREN351	From Romanticism to the Age of Modernism and Beyond	3
FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	four additional 4xx level courses in literature, linguistics, film, and culture, of which only one may be in English	12

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
The Maryland-in-Nice program is one of the University of Maryland's oldest study abroad programs. Depending on placement, students studying for a semester in the program Maryland-in-Nice may earn up to 18 credits toward the completion of the major; students studying in Nice for the academic year may earn up to 33 credits. The department also administers a three-week intensive course in Montpellier (France). For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Requirements for the Minor

French Studies

School of Languages, Literatures, and Cultures (SLLC)
www.french.umd.edu

This 18-credit minor will provide students with a solid overview of linguistic, cultural and literary aspects of the study of French.

Courses required for the minor, in this order, are:

FREN204, FREN250, FREN301

Following completion of this core sequence, students will choose two courses from the following:

FREN302 or FREN303
FREN311 or 312
FREN351, 352, **and** any 4xx-level course/s*

***Starting in Fall 2013 one 4xx-level elective is now required for completion of the minor in French studies.**

- All courses must be taught in French
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of Maryland in Nice, which allows the transfer of nine (9) credits
- All courses presented for the minor must be passed with a grade of "C-" or better
- An overall GPA of 2.0 in the minor is required for graduation
- **Students who matriculated in Fall 2012 or later must earn a cumulative GPA of 2.0 within their minor in order to graduate.**
- Students who begin their study as native/fluent speakers should seek the advice of the advisor before choosing the courses they will use to replace the core minor courses.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Dr. Erica Cefalo emcefalo@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Honors Program

For information, see: http://sllc.umd.edu/french/undergraduate/honors

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Geology (GEOL)

College of Computer, Mathematical & Natural Sciences
1120 Geology Building, 301-405-4082
www.geol.umd.edu
Chair: R. Walker
Professors: M. Brown, P. Candela, J. Farquhar, A. Kaufman, D. Lathrop (Prof & Dir), W. McDonough, A. Wylie (Distinguished Scholar Teacher)
Associate Professors: M. Evans, S. Kaushal, L. Montesi, S. Penniston-Dorland, K. Prestegaard, W. Zhu
Assistant Professors: V. Lekic (Asst Prof), N. Schmerr (Asst Prof)
Senior Lecturer: T. Holtz (Senior Lecturer), J. Merck (Senior Lecturer)
Lecturers: T. Centorbi
Affiliate Professors: A. Busalacchi (Prof & Dir), G. Helz (Res Prof), B. James (Prof & Dir, Affiliate Prof), M. Kearney (Affil Assoc Prof, Prof), F. Miralles-Wilhelm (Prof, Prof & Dir), R. Murtugudde, J. Sunshine (Prof, Affiliate Prof)

Affiliate Associate Professors: N. Zeng
Affiliate Assistant Professors: D. Lampkin (Asst Prof, Aff Asst Prof)
Adjunct Professors: J. Bohlke, Y. Fei, R. Rudnick, S. Shirey, D. Smith (Adjunct Prof), S. Sorensen, A. Steele
Adjunct Associate Professors: A. Campbell, E. Cottrell (Adjunct Assoc Prof), W. Jiao (Adjunct Assoc Prof)
Adjunct Assistant Professors: R. Arevalo, J. Roberts, A. Shahar (Adjunct Asst Prof)
Research Scientist: P. Piccoli (Res Sci), I. Puchtel (Res Sci)
Associate Research Scientist: R. Ash (Assoc Res Sci)
Professors Emeriti: R. Rudnick (Dist Univ Prof Emerita), P. Stifel (Assoc Prof Emeritus), A. Wylie (Prof Emerita)
Visiting Faculty: E. Barrera, S. Hier-Majumder, J. Huang (Visit Assoc Res Sci), T. Johnson (Visit Res Assoc), M. Trachsel (Post-Doc Assoc), Z. Zajacz (Visit Res Assoc)

The Major

Geology is the science of the Earth. In its broadest sense, geology concerns itself with planetary formation and subsequent modification, with emphasis on the study of planet Earth. Geologists study Earth's internal and surficial structure and materials, the chemical and physical processes acting within and on Earth, and utilize the principles of mathematics, physics, chemistry, and biology to understand our planet and its environments.

Geological sciences encompass all the physical, chemical, and biological aspects of Earth. Increasingly, geologists are taking a holistic approach in the collection and interpretation of data about Earth, which means that the wider context of the geological sciences is broad and diverse. In studying Earth as a system, we are concerned with geology and geophysics, hydrology, oceanography and marine science, meteorology and atmospheric science, planetary science, and soil science. A major in any relevant discipline can lead to a satisfying career within the geological sciences. In general, graduate training is expected for advancement to the most rewarding positions and for academic employment.

Program Objectives

Geologists are employed by governmental, industrial, and academic organizations. Geologists work in exploration for new mineral and hydrocarbon resources, as consultants on engineering and environmental projects, as teachers and researchers in universities, and in many other challenging positions. For many, the attraction of a career in geology is the ability to divide time between work in the field, the laboratory, and the office. Although the employment outlook within geology varies with the global economic climate, the long-range outlook is good. This is because our dwindling energy, mineral, and water resources, along with increasing concerns about natural hazards and environmental issues, present new challenges for geologists.

Program Learning Outcomes

The Geology program at Maryland includes a broad range of undergraduate courses to accommodate both Geology majors and students within the Environmental Science and Policy

program. Within the Geology major, a requirement exists for a senior undergraduate research project to be performed under the direction of a faculty advisor. This requirement provides invaluable experience in writing proposals and reports, gathering, analyzing and evaluating data, and delivering scientific talks. In addition, a Departmental Honors Program and a combined B.S./M.S. Program are available.

Requirements for the Major

Requirements for the Geology Major, Professional Track

The geology curriculum is designed to meet the requirements of industry, graduate school, and government. For the B.S. degree, the students are required to complete departmental requirements, capstones, core discipline options, and elective (58 - 62 credits) and the supporting requirements (16 credits) in addition to the General Education Program requirements and the completion of at least 120 credits. The department requires that to receive a degree in Geology, students must have a grade of C- or better in the required geology courses, and an average of C- or better in the supporting courses.

Courses required for the B.S. in Geology are listed below. Some courses require field trips for which the students are expected to pay for room (if required) and board. Field camp is taken during the summer at institutions other than the University of Maryland, College Park, that offer camps approved by the department.

Required Geology Courses

One of the following:

- GEOL100—Physical Geology (3)
- GEOL120—Environmental Geology (3)

GEOL110—Introductory Geology Lab (1)

GEOL102—Historical Geology (4)

GEOL322—Mineralogy (4)

GEOL341—Structural Geology (4)

GEOL342—Stratigraphy and Sedimentation (4)

GEOL423—Optical Mineralogy (4)

GEOL443—Petrology (4)

Total credits: 28

Geology Capstones:

GEOL393—Senior Thesis I - Proposal (3)

GEOL394—Senior Thesis II - Research (3)

GEOL490—Field Camp (6)

Total credits: 12

Geologic Core Discipline options: Choose one course from each of the following groups.*

Quantitative Reasoning:

• GEOL351— Statistics for Geoscientists (3)

• Geoscientific Modeling (3)

• GEOL447— Observational Geophysics (3)

Surface Processes:

• GEOL340— Geomorphology (4)

• GEOL451— Groundwater (3)

Geophysics:

• GEOL412 – Geology of the Terrestrial Planets (3)

• GEOL446— Geophysics (3)

• GEOL455— Marine Geophysics (3)

• GEOL457— Seismology (3)

Geochemistry:

• GEOL444— Low-Temperature Geochemistry (4)

• GEOL445— High-Temperature Geochemistry (4)

• GEOL463— Economic Geology (3)

Geobiology:

• GEOL331— Principles of Paleontology (4)

• GEOL435— Environmental Geochemistry (3)

• GEOL436— Biogeochemistry (3)

• GEOL437— Global Climate Change, Past and Present (3)

Total credits: 15 – 18

Geology Elective:

• Any 3-4 credit 300 – 400 level GEOL course not taken to satisfy the above requirements or appropriate substitution with the approval of the department.

Total credits: 3 – 4

Supporting Courses:

One of the following:

- CHEM131—Fundamentals of General Chemistry (3) and CHEM132— Fundamentals of General Chemistry Laboratory (1)
- CHEM135—Chemistry for Engineers and CHEM136 (3) — Chemistry for Engineers Laboratory (1)

MATH140—Calculus I (4)

MATH141—Calculus II (4)

One of the following:

- PHYS161—General Physics: Mechanics and Particle Dynamics (3) and PHYS174—Physics Laboratory Introduction (1)
- PHYS171—Introductory Physics: Mechanics and Relativity (3) and PHYS174 —Physics Laboratory Introduction (1)

Total credits: 16

Overall total credits: 74 – 78

Matriculated Geology majors are expected to take all courses on campus unless specific departmental permission is given.

* Or appropriate substitutions with the approval of the department.

Requirements for the Geology Major, Secondary Education Track

The Secondary Education Track in Geology leads to a B. S. degree in Geology with special emphasis on course work that helps prepare the student for teaching at the secondary school level in a manner consistent with the UTeach Initiative and Common Core standards. Further coursework and student teaching are required for an education certification. This track also prepares the student for work as a geologist in government or industry, or for further graduate study, although students primarily intending to attend graduate school in geology are advised to choose the Professional Track. Students seeking professional opportunities in secondary education are urged, also, to consult with advisors in the College of Education.

Compared to the professional geology track, the secondary education track, reduces by three the number of upper-level geology requirements, and adds eight credits of education courses along with requirements for an atmospheric and oceanic science and an astronomy course. Further coursework in education (including student teaching) will be required in order to obtain a Maryland State Teaching Certification. The department requires that to receive a degree in Geology, students must have a grade of C- or better in the required geology courses, and a C- average or better in the supporting courses.

• **Geology Courses**

One of the following:

- GEOL100 - Physical Geology and Laboratory (3)
- GEOL120 - Environmental Geology and Laboratory (1)

GEOL102—Historical Geology (4)

GEOL322—Mineralogy (4)

GEOL341—Structural Geology (4)

GEOL342—Stratigraphy and Sedimentation (4)

GEOL393—Sr. Thesis I - Proposal (3)

GEOL394—Sr. Thesis II – Research (3)

GEOL423—Optical Mineralogy (4)

GEOL443—Petrology (4)

GEOL490—Field Camp (6)

•Two of the following:

GEOL212 – Planetary Geology (3)

GEOL331 – Principals of Paleontology (4)

GEOL340 – Geomorphology (4)

GEOL/AOSC375 - Introduction to the Blue Oceans (3)

GEOL444 - Low-Temperature Geochemistry (4)

GEOL445 - High-Temperature Geochemistry (4)

GEOL446 – Geophysics (3)

GEOL451 – Groundwater (3)

Total credits: 46 – 48

• **Supporting Courses**

One of the following:

- ASTR100—Introduction to Astronomy (3)
- ASTR101 – General Astronomy (4)

One of the following:

- AOSC123– Causes and Implications of Global Change (3)
- AOSC200 – Weather and Climate (3)

One of the following:

- CHEM131—Fundamentals of General Chemistry (3) and CHEM132— Fundamentals of General Chemistry Laboratory (1)
- CHEM135—Chemistry for Engineers (3) and CHEM 136— Chemistry for Engineers Laboratory (1)

MATH 140—Calculus I (4)

MATH 141—Calculus II (4)

One of the following

- PHYS 161— General Physics: Mechanics (3) and Particle Dynamics and PHYS 174— Physics Laboratory Introduction (1)

- PHYS 171— Introductory Physics: Mechanics (3) and Relativity and PHYS 174— Physics Laboratory Introduction (1)

Total credits: 22 – 23

• Introductory teaching seminars (3 credits)

TLPL 101 – Introduction to Teaching Seminar (1)

TLPL 102—Introduction to Teaching seminar (2)

• Education Courses (6 credits from among the following)

EDCI 488M—Knowing and Learning (3)

EDCI 488P—Project Based Instruction (3)

Classroom Interactions (3)

Reading (3)

Perspectives Science and Math (3)

Total credits: 6

Cumulative total credits: 77 - 80

Requirements for the Geology Major, Geophysics Track

The geophysics curriculum is designed to meet the requirements of industry, graduate school, and government. For the B.S. degree, the students are required to complete introductory geology and physics requirements (39 credits) and upper-level requirements including depth options, context options, and breadth options (30 - 35 credits) in addition to the General Education Program requirements and the completion of at least 120 credits in total. In order to receive a degree in Geophysics, the department requires that students must have a grade of C- or better in the required geology courses.

Courses required for the B.S. in Geology are listed below. Some courses require field trips for which the students are expected to pay for room (if required) and board.

Required Introductory Physics and Geology:

One of the following:

• GEOL100 – Physical Geology (3)

• GEOL120 – Environmental Geology (3)

GEOL110 – Introductory Geology Lab (1)

MATH140 – Calculus I (4)

MATH141 – Calculus II (4)

MATH241 – Calculus III (4)

One of the following:

- PHYS 161 – General Physics: Mechanics and Particle Dynamics (3)
- PHYS 171 – Introductory Physics: Mechanics and Relativity (3)

PHYS 165 – Introduction to Programming for the Physical Sciences (3)

PHYS 174 – Introductory Physics Laboratory (1)

PHYS 272 – Fields (3)

PHYS 273 – Waves (3)

PHYS 275 – Experimental Physics I: Mechanics, Heat, and Fields (2)

PHYS 276 – Experimental Physics II: Electricity and Magnetism (2)

One of the following:

• PHYS274 – Mathematical Methods for Physics I (3) and GEOL351 – Statistics for Geoscientists (3)

• MATH 240 – Linear Algebra (3) and MATH 246 – Differential Equations for Scientists and Engineers (3)

Total credits: 39

Geophysics Upper Level Requirements:

GEOL393 – Senior Thesis I - Proposal (3)

GEOL394 – Senior Thesis II - Research (3)

GEOL446 – Geophysics (3)

Total credits: 9

Depth Requirements: Choose three of the following:

GEOL412 – Geology of Terrestrial Planets (3)

GEOL447 – Observational Geophysics (3)

GEOL455 – Marine Geophysics (3)

GEOL456 – Engineering Geology (3)

GEOL457 – Seismology (3)

GEOL460 – Field Geophysics (3)

Total credits: 9

Context Requirement: Choose two of the following:

AOSC400 – Physical Meteorology of the Atmosphere (3)

AOSC424 – Remote Sensing of the Atmosphere and Ocean (3)

AOSC431 – Atmospheric Thermodynamics (3)

AOSC432 – Dynamics of the Atmosphere and Ocean (3)

GEOL322 – Mineralogy (4)

GEOL340 – Geomorphology (4)

GEOL341 – Structural Geology (4)

GEOL342 – Sedimentation and Stratigraphy (4)

GEOL423 – Optical Mineralogy (4)

GEOL443 – Petrology (4)

GEOL451 – Groundwater (3)

GEOL463 – Economic Geology (3)

GEOL472 – Tectonics (3)

Any upper level (300 or higher) Geology course with the approval of the undergraduate director not used to satisfy above requirements.

Total credits: 6 - 8

Breadth requirement: Choose two of the following:

PHYS373 – Mathematical Methods for Physics II (3)

PHYS371 – Modern Physics (3)

PHYS401 – Quantum Physics I (4)

PHYS402 – Quantum Physics II (4)

PHYS410 – Classical Mechanics (4)

PHYS411 – Intermediate Electricity and Magnetism (4)

Total credits: 6 - 8

Recommended courses: One of the following:

- CHEM131– Chemistry I – Fundamentals of General Chemistry (3) and CHEM132 – General Chemistry I Laboratory (1)
- CHEM135 – General Chemistry for Engineers (3) and CHEM136 – General Chemistry Laboratory for Engineers (1)

Overall total credits: 69 – 73

Matriculated Geology majors are expected to take all courses on campus unless specific departmental permission is given.

Other Requirements for the Major

Combined B.S./M.S. in Geology

The Combined B.S./M.S. program is designed to permit a superior student to earn both the Bachelor's and the Master's degrees in as few as five years of study. Although designed to provide an integrated experience of undergraduate and graduate work, the combined B.S./M.S. program is not a course of study separate and distinct from the traditional B.S. and M.S. Students in the combined B.S./M.S. program will, at any given time, be either undergraduate or graduate students. The program provides the opportunity for a superior student to telescope these degrees by taking up to nine graduate credits (600-level or higher) while still an undergraduate and counting them toward both degrees. A grade of "B" or better must be earned in each of these courses. Under optimal circumstances, one might complete both degrees in five years. Actual completion time will vary depending on one's individual circumstances. The master's thesis may be a continuation of work begun as part of the undergraduate senior thesis.

Acceptance into the combined B.S./M.S. normally would occur after the end of the sophomore year. The minimum requirements for acceptance into this program are similar to those for the geology honors program, namely an overall GPA of at least 3.0 at the end of the sophomore year and a GPA of 3.0 or better in all courses required for the major. Interested eligible students must provide the following material to be considered:

1. At least three letters of recommendation. At least one of these must be from a prospective graduate advisor, who must outline the applicant's sources of potential funding.
2. An essay or statement of purpose.
3. An interview with the undergraduate Honors Director and the Graduate Director.

Based on this, students may be provisionally accepted into the program. Students so accepted will be permitted to enroll in appropriate graduate-level courses. The combined B.S./M.S. program allows 9 credits of graduate courses (600-level or above) to be counted towards both the B.S. and M.S. degrees. A grade of "B" or better must be earned in each of these courses. Acceptance is provisional pending satisfaction of the following:

1. Completion of the undergraduate curriculum.
2. A GPA of 3.5 or better in GEOL393 and GEOL394.
3. Maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major.
4. Successful completion of the General GRE exam, usually taken during the fall term of the senior year.
5. Formal application and admission to the Graduate School. Your application for graduate admission is completely separate from your application to the combined B.S./M.S. Your participation in the combined BS/MS as an undergraduate does not give you priority over other graduate applicants.

Upon enrollment as a graduate student, the participant may designate the graduate courses that should be counted toward both degrees.

Requirements for the Minor

Earth History Minor

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate minor in Earth History recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Required:

- One of the following:
  - GEOL 100/110 Physical Geology/Physical Geology Lab (4)
  - GEOL 120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL 102 Historical Geology (4)

Plus three from:

- GEOL 331 Principles of Paleontology (4)
- GEOL 341 Structural Geology (4)
- GEOL 342 Sedimentation and Stratigraphy (4)
- GEOL 436 Principles of Biogeochemistry (3)
- GEOL 437 Global Climate Change: Past and Present (3)
- GEOL 499 Special Problems in Geology (3)

Earth Material Properties Minor

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate minor in Earth Material Properties recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Required:

- One of the following:
  - GEOL100/110 Physical Geology/Physical Geology Lab (4)
  - GEOL120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL322 Mineralogy (4)

Plus three from:

- GEOL341 Structural Geology (4)
- GEOL423 Optical Mineralogy (4)
- GEOL443 Petrology (4)

- GEOL445 High Temperature Geochemistry (3)
    - GEOL456 Engineering Geology (3), or
    - GEOL457 Seismology (3)
- GEOL499 Special Problems in Geology (3)

Geochemistry Minor

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate minor in Geochemistry recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Required:

- One of the following:
    - GEOL100/110 Physical Geology/Physical Geology Lab (4)
    - GEOL120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL322 Mineralogy (4)
- One of the following:
    - GEOL444 Low Temperature Geochemistry (4)
    - GEOL445 High Temperature Geochemistry (4)

Plus two from:

- GEOL435 Environmental Geochemistry (3)
- GEOL436 Biogeochemistry (3)
- GEOL443 Petrology (4)
- GEOL444 Low Temperature Geochemistry (4) (if not used to satisfy requirement above)
- GEOL445 High Temperature Geochemistry (4) (if not used to satisfy requirement above)
- GEOL471 Geochemical Methods of Analysis (3)
- GEOL499 Special Problems in Geology (3)

Geophysics Minor

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

Depending on the courses taken, there are a total of 16-18 credits required for the minor in Geophysics (also see prerequisites.)

Required:

- One of the following:
  - GEOL 100/110 Physical Geology/Physical Geology lab (4)
  - GEOL 120/110 Environmental Geology/Physical Geology Lab (4)
- Any two of the following:
- GEOL 446 Geophysics (3)
- GEOL 447 Observational Geophysics (3)
- GEOL 457 Seismology (3)

Plus two from:

- GEOL 341 Structural Geology (4)
- GEOL 446 Geophysics (3) (If not used to satisfy requirement above)
- GEOL 447 Observational Geophysics (3) (If not used to satisfy requirement above)
- GEOL 455 Marine Geophysics (3)
- GEOL 456 Engineering Geology (3)
- GEOL 457 Seismology (3) (If not used to satisfy requirement above)
- GEOL 412 Geology of the Terrestrial Planets (3)
- GEOL 499 Special Problems in Geology (3)

All Geology minors are an appropriate disciplinary combination with Astronomy, Computer Science, Mathematics, or Physics majors within CMNS. The minors are also appropriate for majors outside the college with appropriate matches including, but not limited to:

Geography/Remote Sensing (Surficial Geology)
Engineering and Material Sciences (Earth Material Properties)
Evolutionary Biology and Physical Anthropology (Earth History)
Biology, Biological Diversity, and Ecology (Earth History, Hydrology)

Hydrology Minor

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

An undergraduate minor in Hydrology recognizes concentrated study in a designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director.

A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Minor Requirements

Required:

- One of the following:
  - GEOL 100/110 Physical Geology/Physical Geology Lab (4)
  - GEOL 120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL 451 Groundwater (3)
- GEOL 452 Watershed and Wetlands Hydrology (3)

Plus two from:

- GEOL 436 Principles of Biogeochemistry (3)
- GEOL 444 Low-Temperature Geochemistry (4)
- One of the following:
  - GEOL 453 Ecosystem Restoration (3)
  - GEOL 435 Environmental Geochemistry (3)
- GEOL 499 Special Problems in Geology (3)

Planetary Sciences Minor

The minor in Planetary Sciences will provide students with a broad understanding of the application of the methods of astronomy and geology to the study of the Solar System, and develop the students' appreciation of how issues in the study of planets connect with larger issues in those sciences. It is intended for all students with an interest in the study of the Solar System, be it professional or avocational. In addition to Astronomy and Geology majors, it dovetails with the professional goals of Environmental Science and Policy, Environmental Science and Technology, Chemistry, Physics, Physical Sciences, and Secondary Education majors.

Building on a three-course base of fundamental knowledge of astronomy, geology and an introduction to the Solar System, the program is completed by three advanced courses addressing specific topics adding depth to the student's knowledge of planetary astronomy and to the geologic tools of the planetary scientist. Students are required to sample from optional courses from both departments. The Joint Minor in Planetary Sciences does not require significant prerequisite knowledge, however some optional courses may require prerequisites of 100-level courses in chemistry, mathematics, or geology.

Courses required for the proposed minor are:

REQUIRED:

One of the following:

- ASTR100 Introduction to Astronomy (3)
- ASTR101 General Astronomy (4)
- ASTR120 Introductory Astrophysics - Solar System (3)

One of the following:

- GEOL100/110 Physical Geology/Physical Geology Lab (4)
- GEOL120/110 Environmental Geology/Physical Geology Lab (4)

One of the following:

- ASTR330 Solar System Astronomy (3)
- ASTR430 The Solar System (3)
- GEOL212 Planetary Geology (3)

Plus three from the following*:*
At least one choice must be from Geology and one from Astronomy. At least six credits must be at the 300-400 level.

- ASTR220 Collisions in Space - The Threat of Asteroid Impacts (3)
- ASTR230 The Science and Fiction of Planetary Systems (3)
- ASTR380 Life in the Universe - Astrobiology (3)
- ASTR498 Special Problems in Astronomy (3)
- GEOL322 Mineralogy (4)
- GEOL340 Geomorphology (4)
- GEOL412 Geology of Terrestrial Planets (3)
- GEOL437 Global Climate Change, Past and Present (3)
- GEOL499 Special Problems in Geology (3)
- Or another appropriate astronomy or geology course approved in advance by the Astronomy or Geology advisor (3-4)

Depending on the optional course taken, there is a total of 19-22 required credits (see prerequisites). All courses presented for the minor must be passed with a grade of "C-" or better.

Surficial Geology Minor

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

This undergraduate minor recognizes concentrated study in Surficial Geology, a designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and are administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

Required:

- One of the following:
  - GEOL 100/110 Physical Geology/Physical Geology Lab (4)
  - GEOL 120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL 123 Causes and Implications of Global Change (3)
- GEOL 340 Geomorphology (4)

Plus two from:

- GEOL 331 Principles of Paleontology (4)
- GEOL 342 Sedimentation and Stratigraphy (4)
- GEOL 444 Low Temperature Geochemistry (4)
- GEOL 435 Environmental Geochemistry (3)
- GEOL 437 Global Climate Change - Past and Present (3)
- One of the following:
  - GEOL 451 Groundwater (3)
  - GEOL 452 Watershed and Wetland Hydrology (3)
- GEOL 499 Special Problems in Geology (3)

Advising

The Geology Undergraduate Studies Director serves as the advisor for the geology majors, 1119 Geology Building, 301-405-4379. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Undergraduate Studies Director to make appropriate plans.

Undergraduate Research Experiences

The Professional, Secondary Education, and Geophysics tracks of the Geology major require students to complete a two-semester, six credit senior research thesis (GEOL393 and GEOL394), involving independent original geosciences research under the mentorship of a member of the faculty. Senior thesis students give presentations of proposals, progress, and final results to the entire department.

Honors Program

Admission to the Program will be by invitation of the Honors Committee, normally at the end of the sophomore year and normally will be extended to students with an overall GPA of 3.0 or better and a GPA of 3.0 or better in all courses required for the major.

Graduation with Honors normally requires completion of the curriculum, grades of B- and A- or better in GEOL393 and GEOL394 (i.e., grades for one semester must be at least an A-, and the second semester grade cannot fall below a B-), and maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major. Maintenance of a general GPA and GPA in geology major courses of 3.5 or above and a grade of A in both GEOL393 and GEOL394 will earn the distinction of Graduation with High Honors.

The curriculum for Honors in Geology follows the University Honors Program Track I: Thesis Option with a 15 credit minimum.

1. The requirement for upper division Honors courses will be met by a minimum of 9 hours as follows:

a. GEOL497H - Recent Advances in Geology (3 credit hours), and
b. 6 credit hours from the following:

i) a 3 credit hour graduate-level course approved by the Departmental Honors Committee

ii) Honors Option project in a three or four credit hour upper-level course from the offerings in the Geology Department

iii) no more than one Honors College seminar (3 credit hours) addressing a relevant topic in natural sciences. (Typically, this would include seminars offered by faculty in the College of Computer Mathematical and Natural Sciences). The Honors College seminar must be approved in advance by the departmental honors committee.

The Honors Option Proposal must be approved by the departmental honors committee, the professor teaching the course and the Honors College. A proposal must be approved by the Department and submitted to the Honors College by the 10th day of class in the semester in which the course will be taken and the project completed.

2. The research and thesis requirement will be met by completion of GEOL393 and GEOL394 with grades meeting the criteria outlined above (6 credit hours).

Student Societies and Professional Organizations

Sigma Gamma Epsilon, National Honor Society for Earth Sciences, and the Geology Club.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

- Washington Gems & Mineral Scholarship
- Green Scholarship in Environmental Science and Policy
- Marc Lipella Memorial Scholarship

Geographical Sciences (GEOG)

College of Behavioral and Social Sciences
2181M LeFrak Hall, 301-405-4073
www.geog.umd.edu
geog-advise@umd.edu
Chair: C. Justice
Director: R. Dubayah (Associate Director), R. Luna (Undergraduate Director), J. Ma (MPSGIS Program Director), K. Stewart (Director of CGIS)), L. Sun (Graduate Director)
Professors: L. DeFloriani, M. Hansen, K. Hubacek, G. Hurtt, C. Justice, E. Kasischke, S. Liang, S. Prince, J. Townsend
Associate Professors: G. Baiochhi, M. Geores, T. Loboda, J. Silva
Assistant Professors: G. McKenzie, C. Prell
Lecturers: E. Ellicott (Res Asst Prof), A. Eney, L. Giglio (Res Assoc Prof, Lecturer), R. Sohlberg (Fac Res Asst), J. Trocino, K. Yearwood (Physical Lecturer), N. Zhou (GIS Lecturer), M. Zlatic
Adjunct Professors: C. Tucker, D. Williams
Adjunct Associate Professors: S. Goetz, C. Walthall
Professors Emeriti: H. Brodsky (Assoc), J. Cirrincione (Assoc), S. Goward, D. Thompson, J. Wiedel

The Major

How do you see the future? More of everything: food, parks, leisure, personal electronic devices, peace between the nations? Or more people, new diseases, traffic gridlock, and starvation? Will there still be crabs and oysters from the Chesapeake Bay?

The world is changing at unprecedented rates, primarily as a result of human actions. Opportunities for increased well-being of humans and the environment abound. On the other hand, competition for resources such as fresh water and oil is reaching crisis proportions.

The future of humanity depends on skillful management of our environment by planning the social, urban, suburban and rural settings where we work, live and play. Expert care of the environment is needed to maintain supplies of food, natural products, water, and the other resources on which life depends. New insights into the social, economic and urban environment can help control poverty and crime.

Geographical Sciences concerns the relations between people and the natural world, the effects of ecosystems on human beings and vice versa, the choices people make, the effects of past actions on people today, and the effects of today's choices on future generations. Courses offered by this department may be found under the acronym GEOG.

Program Objectives

Mission:

To make fundamental contributions to the advancement of geographic science by:

- Conducting disciplinary and integrative research in the physical and social sciences that spans local to global scales, with an emphasis on a geospatial perspective of our changing planet and its sustainability.

- Equipping undergraduate and graduate students to meet the challenges associated with the continuing evolution of geographic science while providing them with vibrant and fulfilling educational experiences.

- Applying geographic science to societal and environmental issues in our state, the nation and the global community.

Vision:

To lead the development of academic, educational, and research directions of human and natural systems, land cover/and land use change and geospatial information science, harnessing the integrative nature of geographic science to answer fundamental questions of global importance.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

- Possess an understanding of the nature of the physical systems and processes of the Earth's environment and their interactions.
- Understand the nature of the geographical approach and its value in understanding human-environment relationships.
- Know the methods and techniques of data collection, display and analysis used in the study of environmental systems.

Academic Programs and Departmental Facilities

The Geographical Science Department has two 25-seat computer teaching laboratories that are used in undergraduate coursework, particularly in GIS/Remote Sensing courses. There are different types of equipment for field research and remote sensing, and Global Positioning Systems (GPS) are also available.

Requirements for the Major

Within any of the specializations available in the geographical sciences program it is possible for students to adjust their programs to fit their individual interests. The geographical sciences major totals 35 semester hours. In addition to the 35 semester hours, the geographical sciences major is required to take an additional 15 semester hours of supporting course work outside of the department. The hours can be either in one department or in an area of specialization. An area of specialization requires that a written program of courses be reviewed and placed on file by the department advisor. Visit or call the Advising Office, Lefrak 2108, 301-405-4073, e-mail geog-advise@umd.edu, or see the web page at www.geog.umd.edu. Supporting courses generally are related to the area of specialty in geographical sciences. The pass-fail option is not applicable to major or supporting courses. A minimum grade of "C-" in each course is required for major and supporting courses. Students must have a minimum 2.0 cumulative grade point average across all courses, including the supporting sequence, used to satisfy the major degree requirements.

Geographical Sciences Major

The required courses for geography majors are as follows:

	Required Courses	
GEOG201	Geography of Environmental Systems	3
GEOG202	The World in Cultural Perspective	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG212	The World in Cultural Perspective Lab	1
PHYSICAL	Upper-level physical geography course	3
HUMAN	Upper-level physical human course	3
TECHNIQUE	Upper-level geographic technique course	3
	At least one upper-level course in physical geography, human geography and geographic technique is required regardless of the specialty of the individual student's program. These courses build on the initial base provided by the Primary Courses, and also serve as the basis for selection of upper-level geography courses.	
ELECT 300/400	Upper-level geography electives	15
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
	Total Credits:	35

	Supporting Courses	
MATH120	Elementary Calculus I	3
SUPPORT	Supporting courses approved by GEOG advisor	12

Introduction to Geography

The 100-level geography courses are general education courses for persons who have had no previous contact with the discipline in high school or for persons planning to take only one course in geography. They provide general overviews of the field or in one of its major topics. Credit for these courses is not applied to the major.

Related Programs

Geographic Information Science/Computer Cartography Major

The Geographical Sciences Department offers an important area of specialization: GIS and Computer Cartography. The Bachelor of Science degree program in Geographic Information Science and Computer Cartography is designed to give students the technical skills needed to acquire, manage and analyze very large amounts of geographic data. Students will get extensive computer training in digital processing of remote sensing observations and cartographic vector data, spatial analysis, and the display of information products. Almost everything we do involves geographic information, from deciding where to live and travel, to environmental monitoring and urban planning. Influenced by computer technology, the academic disciplines of geographic information science such as remote sensing, geographic information systems (GIS), and computer cartography have evolved dramatically in the past few decades. Remote sensing is the science of obtaining geographic information from aircraft and satellites. GIS technology manages and analyzes different forms of digital geographic data, and this field has been growing at an extraordinary rate. Computer cartography has revolutionized traditional cartography to vastly improve map making and visualization of geographic information in a multimedia environment.

The required courses for GIS majors are as follows:

	Required Courses	
GEOG201	Geography of Environmental Systems	3
GEOG202	The World in Cultural Perspective	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG212	The World in Cultural Perspective Lab	1
PHYSICAL	Upper-level physical geography course	3
HUMAN	Upper-level physical human geography course	3
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
ELECT 300.400	Upper-level geography electives	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG375	Computer Cartography	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spatial Analysis	3
	Total Credits	**35**

	Supporting Courses	
	Supporting courses approved by GEOG advisor	12
	One from	
MATH120	Elementary Calculus I	3
MATH140	Calculus I	4
	Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.	

Geographical Science and Social Studies Education Double Major

In conjunction with the College of Education/Curriculum and Instruction, the Geographical Sciences Department offers a special 121 credit hours program for students wishing to double major in Geographical Sciences and Social Studies Education - Geography Concentration, allowing them to teach geography at the secondary level. Early examination of requirements is encouraged to reduce the number of additional hours required. In addition to the Geographical Sciences Department's required credits, the program requires 28 credit hours of course work in history and the social sciences. For a list of requirements, contact the Geography Undergraduate Advising Office. Requirements are also listed under the Curriculum and Instruction Social Studies Education - Geography Concentration double major option.

Requirements for the Minor

Minor in Geographic Information Science (GIS)

See undergraduate advising office for more information: LeFrak Hall 2108, 301-405-4073.

	Non-Geography Major Required Courses	
GEOG201/211 **or** GEOG202	Geography of Environmental Systems/Lab **or** The World in Cultural Perspective	3 or 4
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
	One from:	
GEOG472	Remote Sensing: Digital Processing and Analysis	
GEOG473	Geographic Information Systems and Spatial Analysis	3
GEOG475	Computer Cartography	
	Total Credits	**15/16**

	Geography Major Required Courses	
GEOG306	Introduction to Quantitative Methods for the Geographic Environment Sciences	3

GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG476	Programming for Geographers	3
	One from	
GEOG472	Remote Sensing: Digital Processing and Analysis	
GEOG473	Geographic Information Systems and Spatial Analysis	3
GEOG475	Computer Cartography	
	Total Credits	**15**

Student must achieve a "C-" or better in each course applied to the minor in Geographic Information Systems. Students must have a minimum 2.0 cumulative grade point average across all courses, including the supporting sequence, used to satisfy the minor requirements.

Minor in Remote Sensing of Environmental Change (RSEC)

Description:

The Remote Sensing of Environmental Change minor program (RSEC) is designed to build students' understanding global environmental change in order to assess their impacts on the physical and human landscapes, and to use remote sensing as an analytical tool for identifying the impacts. Students in the minor program will receive technical training in remote sensing to examine how extreme environmental events shape human society and ecosystems from the interdisciplinary perspective afforded by the field of Geography.

Admission to the Program:

There are no special requirements for the Minor Program in Remote Sensing of Environmental Change. The Department of Geographical Sciences welcomes students from every area of study. GIS and ENSP students are also welcome to enroll in this minor.

Requirements:

• All credits for the minor must be taken in the Department of Geographical Sciences at the University of Maryland, College Park.

• All courses must be completed with a grade of "C-" or better.

• No more than **six credits** are to be included in the Minor and student's major, supporting courses, and college requirements.

The Required Curriculum: **(18 credits)**

Foundation Course (3 credits)

• **Natural Disasters:** GEOG 140 (3 credits)

Or

• **Introduction to Methods of Geospatial Intelligence and Analysis:** GEOG170 (3 credits)

Technical Geography Courses (6 credits)

• **Introduction to Remote Sensing:** GEOG372 (3 credits)

• **Advanced Remote Sensing:** GEOG472 (3 credits)

Choose one Physical Geography Course (3 credits)

• **Geomorphology:** GEOG340 (3 credits)

• **Biogeography:** GEOG342 (3 credits)

• **Climatology:** GEOG345 (3 credits)

Choose one Human Dimension of Global Change Course (3 credits)

• **Regional Geography: China** GEOG328B (3 credits)

• **Regional: Sub-Saharan Africa:** GEOG328C (3 credits)

• **Regional: Latin America:** GEOG313 (3 credits)

• **Society and Sustainability**: GEOG330 (3 credits)

• **Intro to Human Dimensions of Global Change:** GEOG331 (3 credits)

• **Economic Geography:** GEOG332 (3 credits)

Choose one Advanced Integrated Course (3 credits)

• **Land Use, Climate Change, and Sustainability:** GEOG415 (3 credits)

• **Modeling Human-Environment Interactions:** GEOG416 (3 credits

• **Cultural and Natural Resource Management:** GEOG431 (3 credits)

• **Coastal Oceans:** GEOG441 (3 credits)

• **Biogeography & Environmental Change:** GEOG442 (3 credits)

Advising

Advising is Mandatory for students each semester. The advising office is located at 2181M LeFrak Hall. If you can, please email before you visit us since the schedule can change day to day. We can always be reached via email at geog-advise@umd.edu or voice mail at 301-405-4073.

Fieldwork Opportunities

GEOG328 (Winter): The Geography of the Southern Caribbean
This course offers an unique and challenging "hands-on" study of Grenada and the Grenadines during the Winter term. The best way to study the Grenadines is by sailing vessel. The Grenadines are the "land of eternal summer," making them one of the most exclusive sailing grounds in the world. Students will be able to visit not only Grenada, but St. Lucia, St. Vincent, and Tobago Cays.

GEOG358A Croatia (Summer): country in transition emerging from the war and communism. This course is a geographical survey of Croatia, focusing on its natural and built environment, human and economic resources, and recent emergence from war and communism into a modern democratic state. http://www.geog.umd.edu/content/study-abroad

Internships

The Department of Geographical Sciences offers a one-semester internship program for undergraduates. Students can earn a total of three credits. Students are responsible for finding their own internships and can pursue a wide variety of opportunities in the public private and non-profit sectors. Internships may be on-or off-campus, paid or unpaid. http://www.geog.umd.edu/content/internship-program

Internship Requirements

- Junior or senior with a minimum of 70 credits
- 2.5 GPA overall

Internship partners

- NASA Develop
- USDA
- Mitre Corporation
- NOAA
- ESRI
- The Maryland National Capital Park and Planning Commission

Honors Program

Students admitted to the Honors program engage in independent research under the guidance of an individual faculty member. Students are eligible upon completion of 30 credits of geography courses including the required courses. Honors students will need to register for 12 credits of

which they can substitute for formal coursework. Students must have a 3.2 overall GPA and a 3.5 GPA in Geographical Sciences. http://www.geog.umd.edu/content/honors-geography

Student Societies and Professional Organizations

Geography Club

Geography Club is back and better than ever! Join undergrads and grad students for cultural potlucks, international movies, charity events and exploratory trips around the DC metropolitan area!

- Contact the Geography Club at geogclubumd@gmail.com for more information.

  Geography T-Shirts are now in! Come by 2181M LeFrak Hall to get yours today! Shirts are $15 and proceeds will go do the Geography Club.

Gamma Theta Upsilon: The Geography Honor Society

GTU is an international honor society in geography that aims to further professional interest in Geography, strengthen student and professional training and encourage student research. Membership is earned through superior scholarship and therefore it is an honor and a professional distinction.

Members must be in their 4th semester of study, working towards a Geographical Sciences or related degree, have a minimum 3.3 GPA cumulative and in all Geographical Sciences classes and attend meetings and events.
Contact Kevin Mathew at geogclubumd@gmail.com for more information
Check us out in Facebook at Facebook.com/umdgeographyclub

The Association of American Geographers

The Association of American Geographers (AAG) is a nonprofit scientific and educational society founded in 1904. For 100 years the AAG has contributed to the advancement of geography. Its members from more than 60 countries share interests in the theory, methods, and practice of geography, which they cultivate through the AAG's Annual Meeting, two scholarly journals (Annals of the Association of American Geographers and The Professional Geographer), and the monthly AAG Newsletter.
http://www.aag.org/

The Sustainability Club

The Department of Geographical Sciences' sustainability club, otherwise known as the Geography Sustainability Task Force (GSTF), seeks to improve the efficiency of our consumption and improve working conditions while at the same time reducing our

environmental footprint. We have made small strides such as changing paper usage and reducing power consumption in computer labs, but continue to work on large issues of departmental and building-wide lighting, water, and waste. Through increased education, awareness, and involvement we look forward to big changes in 2012 and beyond. The GSTF has, and continues to, consult and work with the University of Maryland Office of Sustainability (www.sustainability.umd.edu). Future meetings will be posted here and announced through internal departmental emails.

- Additional information can be obtained from Evan Ellicott (ellicott@umd.edu).

http://www.geog.umd.edu/content/clubs-and-associations

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu

Awards and Recognition

Anderson Award For Undergraduate Excellence

UG Research Paper Award

Undergraduate Research Symposium Award

Outstanding Undergraduate Teaching Assistant Award

Germanic Studies (GERM)

College of Arts and Humanities
3215 JimÃ©nez Hall, 301-405-4025
www.german.umd.edu
Professors: P. Beicken (Distinguished Scholar Teacher), E. Frederiksen (Distinguished Scholar Teacher), A. Moyer, R. Oster
Associate Professors: H. Baer, J. Koser
Lecturers: R. Ianozi
Professors Emeriti: O. Best, G. Jones, G. Pfister, G. Strauch, R. Walker

The Major

The 36-credit BA in Germanic Studies is centered on the study of the German language as well as the literatures and cultures of Germanic peoples. Students who complete the requirements for the major can expect to be able to speak, read, write, and understand German at a level that would allow them to communicate with native speakers. Additionally, students will be able to recognize and interpret the diverse cultural perspectives and products of the German-speaking world, in order to be culturally sensitive members of society.

Program Learning Outcomes

Students will be able to communicate effectively in writing in German by demonstrating accuracy in use of grammatical structures, using appropriate linguistic register, formulating persuasive arguments supported with appropriate textual evidence and incorporating secondary literature. Students will be able to critically interpret written texts in a variety of genres (literature, realia, correspondence, newspaper and magazine articles, poems, dramas, etc.) and demonstrate knowledge of literary concepts. Students will be able to communicate effectively in spoken German demonstrating accuracy in use of grammatical structures, using appropriate linguistic register, and demonstrate a fluency in speaking that includes pronunciation that does not interfere with communication. Students will be to demonstrate knowledge of the institutions, values, and cultural products of Germany and/or the German-speaking world.

Placement in Courses

Please see: http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Prerequisite: 8 credits: GERM103 and GERM203 or equivalent

Course Requirements: 36 credits beyond GERM203

A. Core Language Sequence: 9 credits

GERM204	German Grammar Review
GERM301	Conversation/Composition I: Germany and its People
GERM302	Conversation/Composition II: Current Topics in German Society

B. Area Requirements: 24 credits

A minimum of 2 3xx or 4xx level courses in each of three areas: language, literature, and culture and 2 electives.

Language Courses: minimum of 6 credits

GERM401	Advanced Conversation
GERM403	Advanced Composition
GERM315	Practicum in Translation I
GERM316	Practicum in Translation II
GERM319	Selected Topics in Germanic Language Studies
GERM419	Selected Topics in German Language Study
GERM473	Variation in Contemporary German Language
GERM479	Selected Topics in Germanic Philology

Literature Courses: minimum of 6 credits

GERM320	Survey of German Studies
GERM322	Highlights of German Literature and Culture
GERM424	Classicism
GERM431	Romanticism and Biedermeier
GERM432	From Enlightenment to Storm and Stress
GERM433	Naturalism and its Countercurrents
GERM434	Expressionism to 1945
GERM435	From 1945 to the Present
GERM436	The Usual Suspects: Criminals in German Literature and Film
GERM439	Selected Topics in German Literature
GERM442	Gender and Sexuality in German Literature and Society
GERM443	Literature as Cultural Discourse
GERM444	The German-Jewish Experience
GERM458	Literary and Media Genres

Culture Courses: minimum of 6 credits

Courses marked with * are taught in English

*GERM255	Once Upon a Time: Fairy Tales of the Brothers Grimm
*GERM280	German-American Cultural Contrasts
*GERM281	Women in German Literature & Society
*GERM282	Germanic Mythology
*GERM283	Viking Culture and Civilization
*GERM285	German Film and Literature
*GERM287	Ancient Celtic Culture and Civilization
GERM289	Selected Topics in the Cultures of the Germanic Speaking Countries
GERM299	Special Topics in Germanic Studies
*GERM368	Scandinavian Civilization
*GERM382	German Speaking Civilization
*GERM389	Topics in Germanic Culture
GERM399	Selected Topics in Germanic Studies
GERM441	Border Crossings and Cultural Transfer
GERM449	Selected Topics in Germanic Studies
*GERM463	The Icelandic Family Saga
*GERM475	Old Norse
GERM489	Social Issues in German Culture

C. Capstone Seminar Course (3 credits)

GERM488	Capstone Seminar

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Language of Instruction
No more than 6 credits of the 36 total required may be satisfied by courses taught in English. With the approval of the German Studies advisor, 3 of the 6 credits may be taken outside the department.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Internships
Internships (GERM386) are also encouraged (no more than 3 credits may be applied to the major). GERM386 may not replace the required 6 credits of 3xx or 4xx level courses in any of the three categories.

Requirements for the Minor

Germanic Studies

School of Languages, Literatures and Cultures (SLLC)

www.german.umd.edu

This minor will provide students with an in-depth understanding of German Language and Literature as a source of Culture. Building on these essentials, students can concentrate on Language, Literature or Culture, or a combination of these fields. This will be accomplished by taking 5 courses beyond GERM 203 or its equivalent. Students will determine, in close consultation with the German undergraduate advisor, how to constitute their own concentration.

Minor Requirements:

15 credits - 5 courses beyond GERM203 or its equivalent

- Courses taught in German beyond 203 or its equivalent
- 3 of these 5 courses (9 hours) must be 3xx or 4xx level: one language, one literature, and one culture
- Prerequisites: GERM103 and 203 are required, or their equivalents as determined through departmental advising
- All courses must be passed with a grade of "C-" or higher.
- An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Dr. Regina Ianozi ianozi@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Annual Language Career and Internship Fair

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Honors Program

For information, see http://sllc.umd.edu/german/undergraduate/honors.

Student Societies and Professional Organizations

Individual SLLC departments hold annual induction ceremonies for students who are eligible for honor society membership.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Government and Politics (GVPT)

College of Behavioral and Social Sciences
3140 Tydings Hall, 301-405-4156
www.gvpt.umd.edu
Chair: I. Morris (Prof & Chair)
Director: E. Calvo (Assoc Chair & Assoc Prof), M. Hanmer (Graduate Director & Assoc Prof), S. Kastner (Undergraduate Director & Assoc Prof)
Professors: C. Alford, J. Gimpel, J. Glass, P. Huth, F. Lee, M. Lichbach, W. McIntosh (Assoc Dean), M. Pearson, S. Telhami, V. Tismaneanu, E. Uslaner
Associate Professors: A. Banks, J. Birnir, D. Cunningham, K. Cunningham, V. Haufler, D. Karol, S. Kastner, W. Reed, S. Rouse, K. Soltan, P. Swistak
Assistant Professors: I. Alcaniz, T. Allee, K. Bond, S. Croco, J. Hadden, C. Jones (Asst Prof), L. Mason (Asst Prof), J. McCauley, K. Miler, J. Simmons, I. Ward, P. Wohlfarth
Professors Emeriti: C. Butterworth, R. Davidson, S. Elkin, M. Franda, T. Gurr (Dist. Univ.

Prof.), G. Hathorn, M. Heisler, C. Hsueh, V. Marando, J. Oppenheimer, W. Phillips, D. Piper, G. Quester, C. Stone, R. Terchek, L. Vietri, J. Wilkenfeld

The Major

Government and Politics is one of the largest majors on campus with approximately 1,000 students taking courses in American politics, international relations (official concentration available), comparative politics, political theory, political philosophy, law, public policy, and environmental policy. Its large and diverse group of students are mentored by faculty through a variety of in and out of classroom experiences and have been extremely successful in garnering campus and national awards, acceptance to competitive law and graduate programs, and exciting careers in all levels of government and the private sector. Students also benefit from a large and active group of local alumni who have reached the highest levels of their respective careers and who actively meet, recruit, and mentor current students. Courses offered by this department may be found under the acronym GVPT.

Program Objectives

The Department of Government and Politics offers programs for the general student as well as for students who are interested in careers in government, the public sector, foreign assignment, teaching, a variety of graduate programs, and law schools. In addition to the standard Government and Politics curriculum, the Department offers a formal concentration in International Relations which is noted on the student's official transcript. Satisfactory completion of requirements leads to a Bachelor of Arts degree in Government and Politics.

The study of politics is both an ancient discipline and a modern social science. The origin of the discipline can be traced back to the earliest times when philosophers, statesmen, and citizens studied the nature of government, justice, responsibility, and the consequences of political action. More recently, the study of politics has also emphasized scientific analysis and methods of observations about politics. Today, the discipline reflects a broad effort to collect data about politics and governments utilizing relatively new techniques developed by all of the social sciences.

The Department of Government and Politics combines philosophical and scientific concerns in its overall program as well as in specific courses. It emphasizes such broad areas as political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of study in the discipline. The areas are commonly referred to as American government and politics; comparative government; political theory; international relations; public administration; public law; public policy and political behavior.

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

- An understanding of basic political science concepts including power, institutions, political systems, theories of the state, political conflict, citizenship, and contending analytical and theoretical approaches
- Proficiency in research and analytical skills using either quantitative methods and or library skills
- A basic knowledge of the methods, approaches, or theories used in accumulating and interpreting information applicable to the discipline of political science
- Effective oral and written communication skills to clearly and coherently present information in the discipline of political science

Admission to the Major

Government and Politics is a Limited Enrollment Program that has special requirements for admission, such as minimum GPA guidelines and required courses. Students planning to transfer into the major should contact the department for details on Limited Enrollment requirements. Students admitted as incoming freshmen will have their academic review after 45 credits.

Requirements for the Major

Government and Politics students must complete a minimum 36 credit hours within GVPT, but may take no more than 42 credit hours total within the major. At least 18 of the 36 credits must be in upper-level courses. Students exceeding the 42 credit limit will not be allowed to count additional GVPT credits within the 120 needed to graduate. For every additional GVPT credit, students must complete an additional credit outside of the GVPT major to graduate (AP and IB credits are included in this calculation). A minimum grade of "B-" is required for GVPT170 (or GVPT241 if student has AP/IB credit for GVPT170); a minimum grade of "C-" is required in all other major requirements.

	Required Courses	**Credits**
	One from:	3
GVPT170 OR GVPT171	American Government	
	One from:	3-4
MATH107	Introduction to Math Modeling and Probability	
MATH120	Elementary Calculus I	
MATH140	Calculus	
STAT100	Introduction to Statistics	
GVPT241	The Study of Political Philosophy: Ancient and Modern	3
GVPT201	Scope and Methods for Political Science Research	3
GVPT Electives	Total of 27 GVPT credits, 18 credits of which must be at the 300-400 level	27

Skills Requirement	ECON200 Principles of Microeconomics	3
	Completion of a foreign language through the entire elementary level. See GVPT website for more details.	4-12
	Quantitative course from an approved list	3
	Intermediate-level foreign language course or additional quantitative course from an approved list. See GVPT website for more details.	3-4
Supporting Sequence	Five courses in another major outside of Government & Politics, with at least two courses at the 300-400 level. Approved by GVPT Advisor.	15

All majors must complete a secondary area of concentration in another department or approved disciplinary area. All courses used to satisfy these requirements must be completed with a minimum grade of "C-". Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. Students should consult with an advisor.

Requirements for the International Relations Concentration

	Required Courses	**Credits**
	One from:	3
GVPT170 OR	American Government	
GVPT171	American Government	
	One from:	3-4
MATH107	Introduction to Math Modeling and Probability	
MATH120	Elementary Calculus I	
MATH140	Calculus	
STAT100	Introduction to Statistics	
GVPT241	The Study of Political Philosophy: Ancient and Modern	3
GVPT201	Scope and Methods for Political Science Research	3
GVPT200	International Political Relations	3
GVPT280 or GVPT282	The Study of Comparative Politics Politics and the Developing World	3
GVPT Electives	Total of 21 GVPT credits, 18 credits of which must be at the 300-400 level (additionally, 15 of the 18 upper-level credits must come from an approved list of International Relations or Comparative Politics courses)	21
Skills Requirement	ECON200 Principles of Microeconomics	3
	Completion of a foreign language through the entire elementary level. See GVPT website for more details.	3-12

	Quantitative course from an approved list	3
	Intermediate-level foreign language course. See GVPT website for more details.	3-4
Supporting Sequence	Five courses in another major outside of Government & Politics, with at least two courses at the 300-400 level. Approved by GVPT Advisor.	15

All majors must complete a secondary area of concentration in another department or approved disciplinary area. All courses used to satisfy these requirements must be completed with a minimum grade of "C-". Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major degree requirements. Students should consult with an advisor.

Requirements for the Minor

Minor in International Development and Conflict Management

The minor in International Development and Conflict Management is a 19-credit, undergraduate program of instruction for students aspiring to a profession in the fields of conflict resolution, international development, and humanitarian relief.

Applications are accepted in the Spring and accepted students begin the program the following Fall. Students applying for the program must be entering their sophomore, junior, or senior year of undergraduate work. Applicants must be full-time students in good standing, with a cumulative GPA of 2.5 or better. Up to 35 students are accepted into the program each year.

Advising for the minor is conducted through the Center for International Development and Conflict Management directly, not the Department of Government and Politics. For more information about the minor and for application materials, please visit: www.cidcm.umd.edu/minor/
Requirements for the minor include the following coursework:

	Required Courses	**Credits**
GVPT354	Peacebuilding, Post-Conflict Reconstruction, and International Development	3
STAT	One statistics course from approved list	3
GVPT355	Capstone I: International Development and Conflict Management	3
GVPT356	Capstone II: International Development and Conflict Management	3
ELECT	Elective courses from approved list (2 courses)	6
BSOS388E	Behavioral and Social Sciences Special Topics: CIDCM Minor Practicum	1
	Total Credits	**19**

Note: Six credits (or two courses) can be double counted for your major and the minor. All classes must be completed after acceptance into the minor program, with the exception of the statistics requirement.

All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

Advising

Academic advisors are available to assist students in finding internships, learning about academic opportunities, clarifying post-graduation plans, and general questions.

Academic advising is available daily on a walk-in or appointment basis in the Undergraduate Advising Office located in 3104 Tydings Hall. Walk-in schedules are posted on-line at http://gvpt.umd.edu/undergraduate/undergraduate-advisingprospective-students.

Students are encouraged to see an advisor each semester to ensure understanding of major requirements and to review students' progress within the major. All students are required to see an advisor before they register for their senior year of classes, typically between 75 and 89 credits earned.

Undergraduate Research Experiences

Undergraduate GVPT majors are strongly encouraged to participate in independent research with GVPT faculty members. The independent study option provides students opportunities to work one-on-one with a faculty member doing research on a topic of the student's choosing. Students should expect to devote approximately 12 hours per week for 16 weeks to the independent study. Students should also expect to write a final research paper no less than 40 pages in length. GVPT Advisors are available to assist students in identifying appropriate research topics and in selecting the GVPT faculty mentor.

Only six hours of graded GVPT independent study credit will apply toward the 36 hours needed in the major. Independent study opportunities are generally open only to GVPT majors with junior standing and a 3.0 GPA.

Internships

Undergraduate GVPT majors are strongly encouraged to take advantage of the university's close proximity to Washington D.C. and Annapolis by completing at least one internship experience. The GVPT Advising Office advertises internship opportunities weekly on the undergraduate blog, and advisors can assist students in identifying other internship opportunities.

The department offers three programs through which students can receive academic credit for their internship - the Public Policy Internship Program, the Capitol Hill Internship Program, and

the Maryland Internship Program. Information on these programs is available on the GVPT website, www.gvpt.umd.edu/undergraduate/internships.

Only six hours of graded GVPT internship credit will apply toward the 36 hours needed in the major. Internship credit graded on a pass/fail basis may not be used to satisfy the GVPT major requirements. In no cases may more than 12 internship credits be counted towards the 120 credits needed to graduate. Internships are generally open only to GVPT majors with junior standing and a 3.0 cumulative GPA.

Honors Program

The aim of the Government and Politics Honors Program is to encourage students with outstanding abilities to accelerate their development and intellectual growth under conditions of greater freedom, greater responsibility, and more individual supervision from their instructors. The program also seeks to provide a community within which students can meet one another and further develop their interests in political science and public affairs.

All students majoring in government and politics may apply for admission to the GVPT Honors Program once they have completed the first semester of their sophomore year. Additional information concerning the Honors Program may be obtained online at http://bsosundergrad.umd.edu/academics/departmental-honors-programs.

Student Societies and Professional Organizations

Pi Sigma Alpha, the National Political Science Honor Society, is the only honor society for college students of political science and government in the United States. The Alpha Zeta chapter of Pi Sigma Alpha was founded in 1938 at the University of Maryland, College Park. Since then, the chapter has hosted a variety of activities and worked closely with the Department of Government & Politics. For more information, please visit http://bsos.umd.edu/students/honor-societies

Black Political Student Association was founded in 2008 at the University of Maryland, College Park. The goal of the Black Political Student Association (BPSA) is to unite political-minded university students and discuss issues going on in the world. BPSA aims to build solidarity between Black Government & Politics majors, ignite interest in community involvement, provide opportunities for professional development, and get more Black students involved in the Government & Politics program at UMD.

Scholarships and Financial Assistance

GVPT students are encouraged to apply for Government and Politics Departmental Scholarships and outside scholarship opportunities. For more information on these scholarships, please visit www.gvpt.umd.edu/undergraduate/scholarships.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information, please visit www.financialaid.umd.edu.

Awards and Recognition

Government and Politics students have had great success in winning campus and national awards. Our students have been chosen as university commencement speaker and university medal winner. Many students are regularly selected for national undergraduate conferences and have won national scholarships for graduate and law school. The Undergraduate Director nominates deserving students for departmental and university awards and recognition, and students are informed through the advising office of new opportunities to apply.

Health

See Behavioral and Community Health

Hearing and Speech Sciences (HESP)

College of Behavioral and Social Sciences
0100 LeFrak Hall, 301-405-4213
www.hesp.umd.edu
hesp_staff@umd.edu
Chair: R. Newman (Prof/Chair)
Director: K. Skinker (Lecturer/Dir of Undergraduate Studies)
Professors: J. Edwards (Prof), S. Gordon-Salant (Prof/Dir of Graduate Studies), N. Ratner (Prof)
Associate Professors: M. Goupell, Y. Shah
Assistant Professors: S. Anderson, Y. Huang, J. Novick
Senior Lecturer: T. O'Brien (Senior Lecturer)
Lecturers: C. Brewer (Lecturer), J. Cohen (Lecturer), I. Kachinske (Lecturer), K. King (Lecturer), M. Licata (Lecturer), L. Sherlock (Lecturer), K. Webster (Lecturer), T. Williams Walker (Lecturer), C. Zalewski (Lecturer), F. Zuhurudeen (Lecturer)
Adjunct Professors: W. Gaillard
Adjunct Associate Professors: A. Braun
Research Scientist: M. Fourakis (Res Prof)
Assistant Research Scientist: M. Cleary (Asst Res Sci), O. Stakhovskaya (Asst Res Sci)
Clinical Professor: V. Sisskin (Clin Prof), C. Worthington (Dir of Speech-Language Services)
Associate Clinical Professor: N. Nguyen (Assoc Clin Prof/Director of Audiology Sevices
Assistant Clinical Professor: K. Dow-Burger (Clin Asst Prof), E. Mont (Clin Asst Prof), J. Ortiz (Asst Clin Prof/DIrector of LEAP Program), S. Palmer (Clin Asst Prof), L. Rickard (Clin Asst Prof), P. Schauer (Clin Asst Prof), K. Seward (Asst Clin Prof), K. Slawson (Clin Asst Prof)
Research Professor: P. Fitzgibbons (Res Prof)
Professors Emeriti: M. McCabe, F. Roth, G. Yeni-Komshian

The Major

Hearing and speech sciences is an inherently interdisciplinary field, integrating knowledge from the physical and biological sciences, medicine, psychology, linguistics, and education in order to understand human communication and its disorders. The department curriculum leads to the Bachelor of Arts degree. An undergraduate major in this field provides appropriate background for graduate training in Speech-Language Pathology or Audiology, as well as for graduate work in other disciplines requiring a knowledge of normal or disordered speech, language, or hearing. The student who wishes to work professionally as a speech-language pathologist or audiologist must obtain a graduate degree in order to meet national certification requirements, and most state licensure laws.

The hearing and speech sciences curriculum is designed in part to provide supporting course work for majors in related fields, so most course offerings are available to both departmental majors and non-majors. Courses offered by this department may be found under the following acronym: HESP. Permission of an instructor may be obtained to waive course prerequisites for non-majors wishing to take hearing and speech courses of interest.

Program Objectives

The Department of Hearing and Speech Sciences strives to provide state-of-the-art teaching, research, and clinical services in the areas of Audiology and Speech-Language Pathology.

Program Learning Outcomes

The undergraduate curriculum in Hearing and Speech Sciences is structured to provide a strong background for graduate training in Speech-Language Pathology, Audiology and Hearing, Language or Speech Sciences. Although required courses at the undergraduate level are identical for all undergraduate majors, emphasis can be given to individual curricula through the selection of elective courses. Having completed the degree program, students should have acquired the following knowledge and skills:

- Students will demonstrate application of fundamental concepts of basic sciences (i.e., biological, physical, mathematics/statistics, behavioral and social sciences) to the hearing and speech sciences discipline.
- Students will demonstrate knowledge of basic communication processes.
- Students will demonstrate knowledge of speech, language, and hearing disorders and differences, including etiologies and characteristics, prevention, assessment, and intervention.

Academic Programs and Departmental Facilities

The Department of Hearing and Speech Sciences offers students numerous opportunities to interact with faculty in teaching, research and clinical experiences. Faculty welcome the participation of undergraduates in their research laboratories. The Hearing and Speech Clinic as

well as the Language Learning Early Advantage Program (LEAP preschool) in Lefrak Hall allow students to observe the interaction between clinical and research efforts.

Admission to the Major

The undergraduate curriculum in HESP is not a limited enrollment major. The program is structured to provide adequate background for graduate training in Speech-Language Pathology, Audiology and Speech, and Language or Hearing Sciences. It is considered to be a pre-professional program. It is important for HESP students to understand that **this major requires a graduate degree in order to pursue a career in this field**. Students should be advised that graduate school admissions are **highly competitive**; therefore students must perform to the best of their ability throughout the entire undergraduate curriculum in order to be considered for admittance into a graduate program. Due to the nature of the coursework, students who change their major or transfer to the University made not be able to complete this major in just two years.

Requirements for the Major

Students majoring in hearing and speech sciences must complete 33 semester hours of required courses satisfy major course requirements. No course with a grade less than "C-" may count toward major course requirements. In addition to the 33 semester hours needed for a major, 12 semester hours of supporting courses in statistics and other related fields are required. For these 12 hours, a "C-" average is required. In addition, when a HESP course has a listed pre-requisite, this pre-requisite must have been completed with a grade of "C-" or better before registration in the subsequent course will be approved.

A guide to the major is available through the department office in room 0100 Lefrak Hall or on the departmental website at www.bsos.umd.edu/hesp/

Course sequencing is extremely important within this major. Advising for majors is mandatory.

	Required Courses	**Credits**
HESP120	Introduction to Linguistics	3
HESP202	Introduction to Hearing and Speech Sciences	3
HESP300	Introduction to Psycholinguistics	3
HESP305	Anatomy and Physiology of the Speech Mechanism	3
HESP311	Anatomy, Physiology, and Pathology of the Auditory System	3
HESP400	Speech and Language Development in Children	3
HESP403	Introduction to Phonetic Science	3
HESPxx	Any one of: HESP 402, 404, 406, 410	3
HESP407	Bases of Hearing Science	3
HESP411	Introduction to Audiology	3
	Electives	
	Students must take one course from the following offerings:	
HESP386	Experiential Learning	3

HESP388	Undergraduate Research Internship	
HESP389	LEAP Classroom Internship	
HESP402	Speech Pathology I: Language Disorders in Children	3
HESP404	Speech Pathology II: Voice and Fluency Disorders	3
HESP406	Speech Pathology III: Aphasia and Neuromotor Disorders	3
HESP410	Organic Speech Disorders	3
HESP413	Aural Rehabilitation/Habilitation	3
HESP417	Principles and Methods in Speech Language Pathology and Audiology	3
HESP418	Clinical Practice in Speech Language Pathology and Audiology	3
HESP420	Deafness and sign language	3
HESP422	Neurological bases of human communication	3
HESP469	Honors thesis research	3
HESP498	Seminar in Hearing and Speech Sciences (topics vary)	3
HESP499	Independent Study	3

	Allied/Related Fields (12 credits) In addition to a required statistics course, the student will take nine credits from course offerings in Allied/Related Fields and PSYC 100. A more complete list of these courses can be found on the Hearing and Speech Department website.	
PSYC100	Introduction to Psychology	3
STAT	one Statistics course from EDMS451, PSYC200, or BIOM301	3
ELECT	two courses from Allied/Related Fields	6

Finally, HESP majors must complete BOTH a biological and a physical science to satisfy national certification standards for speech-language pathologists and audiologists. Specifically, to meet the general education requirements of the university and the requirements for the major, HESP majors must complete PHYS102/103 lab as the physical science requirement and a life science course that is based on the biology of the human system and not plants or insects.

Other Requirements for the Major

It is important for students to understand that coursework in Hearing and Speech Sciences requires careful sequencing. The material in early courses provides the foundation for later courses. For this reason most HESP courses have required pre-requisites and academic advising is crucial. Students are also required to earn a grade of "C-" or higher in each course required for the major. Students will not be allowed to take any course until they have earned a "C-" or higher in the pre-requisite for that course. All HESP students are required to meet with the department advisor prior to enrolling for the following semester.

Requirements for the Minor

Requirements for the HESP minor include the following coursework:

HESP202-Introduction to Hearing and Speech Sciences

HESP300-Introduction to Psycholinguistics

HESP400-Child Language Acquisition

HESP403-Phonetics

HESP407-Hearing Science

PLUS 2 courses in one of the two elective areas:

*Elective option 1 (Speech-Language Pathology Focu*s)

HESP305-Anatomy/Physiology of the Speech Mechanism, and

HESP402, 404, 406, 410

Elective option 2 (Audiology focus)

HESP311-Anatomy/Physiology/Pathology of the Auditory Mechanism, and

HESP411-Introduction to Audiology

TOTAL CREDITS: 21

Notes:
All classes must be completed with a grade of "C-" or better; as with HESP majors, students must obtain a grade of "C-" or better in a class in order to enroll in any courses that require that class as a pre-requisite.

This course sequence acquaints the student with the primary basic science background in the speech, language and hearing sciences, and permits the student to select two courses in the specific professional areas of speech, language or hearing, based on the student's primary interest area.

This minor is designed for the student in other majors (such as Psychology, Education, Linguistics, FOLA, etc.) who may have plans to attend graduate school in the fields of Speech-Language Pathology or Audiology. These courses are widely viewed as pre-requisite for admission to such programs and constitute a proportion (but not the full extent) of classwork required for eventual post M.A. or post-Au. D. certification by the American Speech-Language-Hearing Association (ASHA) as either a Speech- Language Pathologist or Audiologist. Because

both graduate programs and ASHA may require additional coursework, the student pursuing the HESP minor is strongly encouraged to meet with a HESP academic advisor to ensure that eventual educational goals are properly addressed. The HESP minor does not qualify an individual to work professionally as a Speech-Language Pathologist or Audiologist, but does provide a proportion of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

Advising

Advising for HESP undergraduate majors is MANDATORY before registration each semester. Students will be notified by e-mail of their registration date or they may check their registration status by going to Testudo and clicking on "Appointment and Registration status". Students should schedule an advising meeting no sooner than one week prior to their registration date as this prevents students from having to return for another appointment due to closed classes. Advising appointments may be made by going to http://hespadvisingcalendar.umd.edu/ . Advising is always available to students regarding academic and major choices, career planning, and/or academic concerns.

Undergraduate Research Experiences

Undergraduates are encouraged to work with a faculty member in the Hearing and Speech Sciences Department. This can be facilitated through the Maryland Center for Undergraduate Research, the Emerging Behavioral and Social Science Scholars Program or by exploring research topics listed by faculty members on the HESP website. Students may work with faculty members on a one-to-one basis as a volunteer research assistant or receive credit for their experience. The number of credits that a student may earn is determined by the faculty researcher. Typically the student is expected to work 3 hours for each credit received in a semester. Unless the student is involved in true independent research, they should enroll in HESP499 with the Pass/Fail grade option. Please note that individual professors may have special requirements for participation in the program. You will need to contact the professor that you wish to work with before enrolling in HESP499 to obtain their permission and their individual section number needed to register. The University limit for 499 credits is six.

Internships

Internships (even if they are not directly related to Hearing and Speech) are an excellent way to obtain experience in the workplace. Although internships are not typically a part of the HESP curriculum, students are encouraged to explore related experiences through the BSOS Social Science Internship Practicum or BSOS Experiential Learning programs.

Honors Program

The objective of the HESP Honors program is to encourage and recognize superior academic achievement and scholarship by providing opportunities for interested, capable, and energetic undergraduates to engage in independent study. A research project will be conducted under the supervision of a faculty mentor and will result in an Honors thesis.

Program Goals

The goals of the HESP Honors program are as follows:

- Educate students to think independently on a broad range of ideas and issues related to the study of Hearing and Speech Sciences.

- Provide opportunities for in depth, scholarly and scientific analysis of significant and current topics in the Hearing and Speech Sciences.

- Provide students with the experience of undertaking a research project.

Benefits of the Program

Honors students get the opportunity to work closely with faculty and participate in outside-the-classroom learning experiences.

Graduating from the Honors program is an excellent way to stand out as an exceptional candidate for graduate school, and thesis-writing experience will help you once you get there!

Additionally, Honors students may take graduate courses and apply the credits toward their undergraduate degree.

Program Overview

1. The HESP Honors program is a three semester sequence, typically spanning from the Fall of Junior year until the Fall of Senior year.

2. Interested students must apply to be considered for the HESP Honors Program by the deadline posted.

3. Students must complete 9 credits of HONR seminars or HESP graduate courses in a subject that supports the proposed course of study or some combination of the two. One of the required HONR seminars towards these 9 credits is HESP499H (3 credits).

4. Students will be expected to complete an Honors Thesis with the assistance of a thesis advisor. The thesis culminates in an oral defense. Students must complete 6 credits of HESP Honors research (HESP469A and B) for the thesis. For students under CORE requirements, three of the HESP Honors research credits may be used to fulfill the CORE Advanced Studies requirement upon successful completion of the thesis defense.

Please meet with the Director of the HESP Honors program for more information on the HESP Honors program.

Student Societies and Professional Organizations

There are two organizations that hearing and speech science majors are invited to join. They are the University of Maryland's Chapter of the National Student Speech-Language and Hearing Association (NSSLHA) and the Student Academy of Audiology (SAA). Both organizations are involved in fund raising, sponsoring educational speakers and participating in community service activities. Further information may be obtained on the department website, www.hesp.umd.edu.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu. Unfortunately, there is no undergraduate financial assistance given by the department.

History (HIST)

College of Arts and Humanities
2115 Francis Scott Key Hall, 301-405-4265
www.history.umd.edu
Chair: P. Soergel (Prof & Chair)
Professors: I. Berlin (Distinguished University Professor), A. Eckstein, R. Friedel, J. Greene, J. Herf, A. Karamustafa, P. Landau, H. Lapin, R. Price, M. Ross, M. Rozenblit (Prof and Director of Graduate Studies), J. Sumida, D. Sutherland, M. Zilfi
Associate Professors: E. Barkley Brown, R. Bell, J. Bianchini, A. Borrut, H. Brewer, A. Caneque, B. Cooperman, M. Dolbilov, D. Freund (Assoc Prof & Director of Undergraduate Studies), J. Gao, S. Giovacchini, C. Lyons, R. Muncy, W. Ridgway, K. Rosemblatt, L. Rowland, D. Sartorius, D. Sicilia, S. Villani, P. Wien (Assoc Prof & Assoc Chair), D. Williams, T. Zeller
Assistant Professors: C. Bonner, M. Bradbury, S. Cameron, P. Kosicki, C. Rodriguez, J. Weisweiler, C. Woods, T. Zhang
Lecturers: R. Chiles, C. Ho, K. Keane, C. Lilley, B. Mendelsohn, A. Rush, E. Smead
Affiliate Associate Professors: J. Taddeo (Visit Assoc Prof)
Affiliate Assistant Professors: S. Baron (Visit Asst Prof)
Professors Emeriti: H. Belz (Prof Emeritus), M. Breslow (Assoc Prof Emeritus), S. Brush (Distinguished University Professor Emeritus), G. Callcott (Prof Emeritus), C. Foust (Prof Emeritus), J. Gilbert (Distinguished University Professor Emeritus), D. Grimsted (Assoc Prof Emeritus), G. Gullickson (Prof Emeritus), J. Harris (Prof Emeritus), J. Henretta (Prof Emeritus), K. Holum (Prof Emeritus), J. Lampe (Prof Emeritus), G. Majeska (Assoc Prof Emeritus), M. Mayo (Assoc Prof Emerita), S. Michel (Prof Emerita), A. Moss (Assoc Prof Emeritus), A. Olson (Prof Emerita), K. Olson (Prof Emeritus), M. Vaughan (Prof Emerita), J. Warren (Prof Emeritus), W. Wright (Prof Emeritus), G. Yaney (Prof Emeritus)

The Major

The Department of History seeks to broaden the student's cultural background through the study of history and to provide preparation for those interested in publishing, teaching, museum work, law, journalism, civil service, military, archival and library work, diplomacy, business school, and graduate study.

Undergraduate advisors assist each major in planning a curriculum to meet his or her personal interests. We expect students to meet with a history undergraduate advisor once every semester.

Courses offered by the Department of History may be found under the acronym HIST.

Program Learning Outcomes

Students will be able to distinguish among a variety of genres of primary and secondary historical texts (e.g. documents, monographs, letters, novels, film, political cartoons, essays) and use them appropriately and effectively in academic work. Students will demonstrate the ability to conduct research using primary and secondary sources including archival, print and non-print, and web-based texts. Students will demonstrate the ability to define and defend a historical thesis.

Academic Programs and Departmental Facilities

Courses in Immigration and Migration Studies (IMMR) examine how migration shapes the United States and the world from historical, political, cultural, and social perspectives and from multiple disciplines. The Immigration and Migration Studies notation is geared toward students interested in studying migration's impact on global society and institutions.

The transcript notation is ideal for students considering careers in law, public policy, social work, and related fields.

Requirements for the Major

Requirements for the History major are 39 hours of history course work distributed as follows: 12 hours in 1xx or 2xx-level introductory courses selected from at least two general geographical fields of history and including HIST208; 15 hours in one major area of concentration (see below); nine hours of history in at least two major areas other than the area of concentration; HIST408. All courses for the major must be completed with a minimum grade of "C-", and 21 hours of the 39 total hours must be at the junior-senior (3xx or 4xx) level. An overall GPA of 2.0 in the major is required for graduation.

At least one course (three credits), must be taken from an approved list of courses on regions outside both Europe and the U.S. The list may be obtained from the History Undergraduate Advisor's Office.

AP and IB credits are accepted.

	Credits
Introductory Courses 1. To be taken at the 1xx or 2xx-level taken in at least two geographical fields. 2. One of these must be HIST208. 3. In considering courses that will fulfill this requirement, students are encouraged to: • select at least two courses in a sequence • select at least one course before 1500 and one course after 1500 • sample both regional and topical course offerings. Students will normally take one or more introductory courses within their major area of concentration	**12**
Major Area of Concentration Students may choose an area of concentration that is either geographic, chronological, or thematic. Areas include: ***Geographic regions:*** Africa, Britain and Western Europe, East Asia, Eastern Europe and Russia, Latin and South America, Middle East, United States; ***Chronological periods:*** Ancient, Medieval and Early Modern Europe, 20th Century World; ***Themes:*** African-American, Economic and Business, Jewish, Military, Religious, Science and Technology, Social and Cultural, Women and Gender.	**15**
Nine Hours of History in at Least Two Areas Outside the Area of Concentration 1. Students are encouraged to select mainly 3xx or 4xx-level courses. 2. Students are encouraged to consider regional diversity.	**9**
Capstone HIST408 will be taken in the senior year and may be inside or outside the area of concentration.	**3**
Supporting Courses Outside History To be taken at the 3xx or 4xx-level in appropriate supporting courses; the courses do not all have to be in the same department. Supporting courses should study some aspect of culture and society as taught by other disciplines. A minimum grade of "C-" is required.	**9**

Other Requirements for the Major

HIST208 is a prerequisite for HIST408.

Requirements for the Minor

Minor in History

The History Minor is designed to introduce students to the broad field of historical study, both by deepening their knowledge and understanding of the past and by developing their ability to do critical, historically-minded analysis. In working with both primary and secondary texts, students will hone their skills in research methods, critical thinking, and expository/analytical writing. The requirement that courses are distributed across geographic fields and chronological periods ensures that students consider the variety and range of historical experiences. History courses must be completed with a grade of C- or better to count toward the minor. Additionally, a minimum GPA of 2.0 is required across all courses counted toward the minor.

Participating students must complete 18 credits (6 courses) in History.

- The courses must be distributed in at least 2 geographic fields (Asia, Europe, United States, Middle East, etc.).
- The courses must include at least one course in each of two chronological periods (pre-1750/post-1750).
- A minimum of 9 credits (3 courses) must be taken at the 3xx or 4xx-level.
- No more than 3 credits (1 course) may be taken at the 1xx-level.
- No more than 3 credits (1 course) may be fulfilled by AP, IB, or transfer credit.
- A student may use a maximum of 6 credits (2 courses) to satisfy requirements for both a major and a minor. Courses completed for one minor may not be used to satisfy the requirements for another minor.
- Any student is eligible to pursue the minor, with the exception of a student majoring in History.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Minor in Middle Eastern Studies

2115 Francis Scott Key Hall, 301-405-4265
http://history.umd.edu/undergraduate/programs/middleeast

Advisor: Antoine Borrut (aborrut@umd.edu); 301-405-7448

Requirements: 15-18 credits (5 courses; some language courses carry more than 3 credit hours per course) towards the Minor in Middle Eastern Studies. Coursework must be distributed to meet the overlapping requirements below. (For example, HIST120: Islamic Civilization can be used to meet both the pre-modern requirement and the Arab world requirement, but does not count doubly in terms of credit.)

> ***6 credits*** *(2 courses) in Area distribution:* At least one course in each of two of the following Area categories: (a) the Arab world; (b) Iran and the Persian/Iranian world; (c) (Middle Eastern) Jewish and Israel; (d) Turkish and

Ottoman; and (e) Middle Eastern Diasporas and All Middle East. Other areas of concentration may be considered and require the director's approval.

6 credits** (2 courses) in Pre-Modern**: At least two courses (6 credits) must focus on the pre-modern period (the 7th century through the 19th century). Students may fulfill this requirement through their area distribution or elective courses.

3 credits** (1 course) in Electives**: The fifth course may be chosen from the list of approved Middle East Studies courses. A language course of 3 or more credits may be used to satisfy this requirement. Advanced Arabic, Persian, Hebrew, or Turkish language courses that are content courses rather than grammar-based can be used for the Elective category or count toward Area Distribution and/or Pre-Modern, depending on subject matter.

Additional requirements:

- A minimum of 3 courses (9 credits) must be at the 3xx or 4xx-level.
- All credits must be earned with a grade of "C-" or above (no Pass/Fail option).
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the academic advisor of the minor and on the MESM's webpage.
- Only one 1xx or 2xx-level or grammar based course in Arabic, Hebrew, Persian, or Turkish may be credited toward the Minor.
- At least six credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- A maximum of two courses can count towards both the major and the minor.
- Courses cannot count towards multiple minors.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Advising

Academic advising is available daily on a walk-in basis in the History Undergraduate Advising Office, 2131C Key Hall. Check the department website for current schedule or contact historyadvising@umd.edu for more information.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Internships

Juniors and seniors may take up to 6 hours of credit in historically-related internships, of which three hours may be counted toward the 39 hours in history required for graduation. All internships must have a direct relationship to the work of understanding, interpreting, presenting or preserving history and/or historical evidence. Students must have both a site supervisor at the

place of the internship and a history faculty mentor for their internship project. Student internships must be approved by the History Department Internship Coordinator. Internships are generally only open to students who have an overall GPA of 2.5 or better.

Honors Program

The purpose of the Honors Program in History is to allow promising undergraduates to develop historical and historiographical skills, in an atmosphere that guarantees personal attention and that encourages hard work and excellence. The Program is a four-semester sequence, the culmination of which is a senior thesis--a major research paper written under the close supervision of a faculty mentor. There are two phases to the program: in the junior year, students are introduced to the problems of history-writing at a sophisticated level, via two seminars on problems of historiography; in the senior year they complete two supervised courses in the writing of the senior thesis.

Student Societies and Professional Organizations

History majors and other interested students are encouraged to join the History Undergraduate Association (HUA), which sponsors events such as an annual Film Festival and special seminars and activities. History majors edit and publish a web-based journal, *Janus*: *The University of Maryland Undergraduate History Journal*, which features student writing relevant to history. *Janus* also sponsors an annual conference where undergraduates present their research and are awarded prizes. The department also hosts the Beta-Omega chapter of Phi Alpha Theta, the national history honors society. Information on these organizations can be obtained from the History Undergraduate Office, 2131 Francis Scott Key Hall.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Human Development and Quantitative Methodology (HDQM)

The core mission of the Department of Human Development, Learning and Quantitative Methodology (HDQM) is to advance knowledge and practice through teaching and research related to human development and learning, and to quantitative methodologies critical to measurement, statistics, and evaluation in the educational, behavioral, and social sciences. The Department offers an undergraduate major in early childhood/early childhood special education, a minor in human development, and courses in development across the lifespan, learning and educational psychology, and quantitative methods. For more information about the undergraduate major and minor programs, see the Human Development/Institute for Child Study section of the catalog.

Early Childhood/Early Childhood Special Education (HDQM)

For more information, see Human Development/Institute for Child Study (HDQM) in Chapter 7 of the Catalog.

Human Development/Institute for Child Study (HDQM)

College of Education
3304 Benjamin Building, 301-405-2827
www.education.umd.edu/HDQM
hdqm@umd.edu
Chair: K. Mix (Prof & Chair)
Director: A. Battle (Director, Academic Services/Outreach)
Professors: P. Alexander, N. Cabrera, K. Dunbar, N. Fox (Dist Univ Prof), B. Jones Harden, M. Killen, K. Rubin, M. Wang, K. Wentzel, A. Wigfield
Associate Professors: D. Bolger, E. Klein, R. Marcus, G. Ramani
Assistant Professors: L. Butler, R. Prather
Lecturers: M. Hurley (Lecturer), M. Kitchen (Lecturer), J. Lee-Kim (Lecturer), R. McPherson (Lecturer), D. Williams (Lecturer), D. Worthy (Lecturer)
Clinical Professor: C. Corbin (Clinical Associate Prof)
Associate Research Professor: E. Cannon (Asst Rsch Prof)
Professors Emeriti: C. Dayton (Prof Emeritus), J. Eliot, C. Flatter, A. Gardner, J. Goering, J. Guthrie, R. Hardy (Prof Emeritus), A. Hatfield, R. Huebner, R. Lissitz (Prof Emeritus), G. Macready (Prof Emeritus), R. Mislevy (Prof Emeritus), S. Porges, W. Schafer (Assoc Prof Emeritus), J. Torney-Purta, B. Tyler

The Major

The Major in Early Childhood Education/Early Childhood Special Education

The Human Development program offers a major in Early Childhood/Early Childhood Special Education (EC/ECSE) (in collaboration with the Department of Counseling, Higher Education and Special Education) and a minor in Human Development. Faculty in the Human Development program also teach courses designed for pre-service and in-service teachers in the College of Education, as well as students from other departments across campus who are seeking an education minor or who desire to work with children and adolescents in school settings. These courses focus on child and adolescent development, language acquisition, cognition, motivation, and reading. In addition, the Human Development program offers undergraduate courses that help students meet other degree requirements. Courses offered by the Human Development program may be found under the following acronym: EDHD.

Faculty in Human Development provide undergraduates with research experiences in their individual laboratories.

The Center for Young Children provides developmentally appropriate education and care for children aged three through kindergarten. The Center provides research opportunities that

involve observing children in their classrooms as part of course requirements in various EDHD undergraduate courses.

Graduates of the Early Childhood/Early Childhood Special Education (EC/ECSE) program receive a Bachelor of Science degree and meet the Maryland certification requirements for teaching early childhood special education (birth through grade three) and early childhood general education (preschool through grade three).

Program Objectives

The mission of the Early Childhood & Early Childhood Special Education program is to prepare knowledgeable and skilled teachers who utilize theory, research and pedagogy, to respectfully and responsively teach and affect the lives of children, with and without disabilities, who come from culturally diverse and low socioeconomic backgrounds.

Program Learning Outcomes

Program learning outcomes for the Early Childhood/Early Childhood Special Education (EC/ECSE) Major are driven by the standards of the Council for Exceptional Children (CEC), National Association for the Education of Young Children (NAEYC), Council for the Accreditation of Educator Preparation (CAEP), as well as the Initial certification requirements of the Maryland State Department of Education and the UM College of Education Conceptual Framework.

1. EC/ECSE teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (National Association for the Education of Young Children – NAEYC; Council for Exceptional Children - CEC), state (MSDE), and institutional standards. They demonstrate their knowledge through inquiry, critical analysis, and synthesis of the subject.

2. EC/ECSE teacher candidates can effectively plan classroom-based instruction or activities for their roles as early childhood educators. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. EC/ECSE teacher candidates accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. EC/ECSE teacher candidates are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (NAEYC and CEC), state (MSDE), and institutional standards.

5. EC/ECSE teacher candidates demonstrate fluency in each of the seven *Maryland Teacher Technology Standards (http://www.mttsonline.org/standards/).*

Academic Programs and Departmental Facilities

Human Development houses the Center for Children, Relationships and Culture, which provides research opportunities for undergraduate students. Faculty in Human Development often provide undergraduates with research experiences in their individual laboratories.

The Center for Young Children provides developmentally appropriate education and care for children aged three through kindergarten. The Center provides research opportunities that involve observing children in their classrooms as part of course requirements in various EDHD undergraduate courses.

The Center for Early Childhood Education and Intervention (CECEI) conducts high-quality research on early childhood education and early intervention programs in order to inform state and federal policy, translate research into scalable education programs and best practices, build capacity in schools and communities, and promote family engagement in their children's education. CECEI offers varied research opportunities for undergraduates. To apply, please submit a cover letter, unofficial transcript, resume, and writing sample to cecei@umd.edu

Admission to the Major

Application to the Early Childhood/Early Childhood Special Education Professional Teacher Education Program must be made by May 1, prior to beginning professional courses. Admission procedures and criteria are explained in the College of Education entry in Chapter Six. The Early Childhood/Early Childhood Special Education program adheres to the College's professional education admissions requirements. In addition to the College of Education selective admissions criteria, EC/ECSE majors must meet the following gateway requirements:

(1) Completion of a four-credit laboratory physical science, a four-credit laboratory biological science, Elements of Numbers and Operations (MATH212), and Elements of Geometry and Measurement (MATH213) with a minimum grade of "C-" in each class and a 2.7 cumulative GPA across all four courses.

(2) Completion of Exploring Teaching in Early Childhood General and Special Education (EDHD220 or approved equivalent) with a grade of "B-" or better and EDHD210.

For additional details regarding the professional education admission requirements, see Chapter 6. Detailed information regarding the gateway requirements for the EC/ECSE program is available in the Office of Student Services, Room 1204 Benjamin.

Placement in Courses

The EC/ECSE Program has designated pre-professional courses and a specified sequence of professional courses. Before teacher candidates may enroll in courses identified as part of the professional sequence, they must first gain admission to the Early Childhood/Early Childhood Special Education Program.

Requirements for the Major

The following courses are required in the program of studies for Early Childhood and may also satisfy the University's general education requirements. See departmental worksheets and advisors for additional information.

PSYC100	Introduction to Psychology	3
SOCIAL SCI	ANTH, ECON, GEOG, GVPT, HIST, SOCY	3
HIST200	Interpreting American History: Beginnings to 1877	3
BIO SCI	Biological Science with Lab	4
PHY SCI	ASTR, CHEM, GEOL, PHYS with Lab	4
EDPS210	Historical & Philosophical Perspectives on Education **OR**	3
EDPS301	Foundations of Education	3

Other Pre-Professional Requirements

MATH212	Elements of Numbers & Operations	3
MATH213	Elements of Geometry & Measurement	3
CREATIVE ART	*One of the following:* KNES181, 182, 183, 421, THET120, EDCI301, ARTT100 or 110, MUED155	2-3
EDHD210	Foundations of ECE	3
EDHD220	Exploring Teaching in ECE	3

Professional Courses

The Early Childhood (EC)/Early Childhood Special Education (ECSE) Professional Block I starts only in the Fall semester and is a prerequisite to Professional Block II which is offered only in the Spring semester. Following Professional Block II is Professional Block III, which is taken in the Fall semester of the yearlong teaching internship. A cumulative grade point average of 2.75 must be maintained after admission to the Early Childhood/Early Childhood Special Education program. All pre-professional requirements and professional courses must be completed with a minimum grade of "C-" and must be completed prior to the yearlong internship. Teacher candidates must obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards. See advisor for program planning. Additional information regarding the requirements for the yearlong internship is included in the College of Education entry in Chapter 6.

Fall Junior Year Courses

EDHD434/EDSP420: Child Development** from Birth to 3 Years (3cr.)
EDHD425: Language Development and Reading Acquisition (3cr.)
EDHD314: Reading in the Early Childhood Classroom (3cr.)

Spring Junior Year Courses

EDHD431: Child Development & Learning, 3 to 8 Years (3cr.)
EDSP 423: Special Education Assessment and Instruction (3cr.)
EDSP315: Inclusive Instruction: Reading Methods (3cr.)

Track I (Birth - 5 yrs.)
EDSP430: Intervention for Infants & Toddlers with Disabilities (3cr.)
EDSP433: Families and Culture in Early Intervention (Birth to 5 Years) (3cr.)

OR

Track II (PreK - 3rd)
EDHD415: Promoting the Social-Emotional Competence of Young Children in Inclusive Classrooms (3cr.)
EDHD424: Culture, School & Community: Contexts for Learning (PreK-3rd) (3cr.)

Fall Senior Year Courses

EDSP321: The Young Child as Scientist (3cr.)
EDHD322: The Young Child as Mathematician (3cr.)
EDHD323: Children Study their World (3cr.)
EDSP417: Reading Diagnosis and Assessment (3cr.)
EDHD441: Data Driven Decision Making in EC/ECSE (1 cr.)
EDHD442: Interventions for Children with Behavioral Challenges (1 cr.)
EDHD443: Interventions for Children with Social Communication Challenges (1 cr.)
EDHD444: Action Research in EC/ECSE (1 cr.)

Spring Senior Year Courses

EDHD437: EC/ECSE Teachers as Researchers and Reflective Practitioners (3 cr.)
EDHD432: Internship in EC/ECSE (12 cr.)

Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for admission to the final, culminating semester of the yearlong internship and for graduation. Students must complete five-semesters of field placement, to include the yearlong internship which takes place in a public Professional Development School (PDS)/collaborating partner school.

Requirements for the Minor

The Minor in Human Development

The Human Development Undergraduate Minor provides a rigorous foundation in Human Development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Students with a 2.0 minimum grade point average may seek enrollment in the program, during which they must complete 15-24 credits of coursework. Only courses in which the student has earned a grade of "C-" or higher will count toward the minor. Students must take EDHD306 and choose other courses from at least two of the other areas of human development study, including Lifespan, Cognitive and Social. Students who have taken FMSC332 will be required to choose a course other than EDHD411 from the list of courses available in Area 4: Lifespan. Students who apply to the Minor and who have taken FMSC302 may substitute that course for EDHD306. At least nine credits must be at the 300 or 400 level.

Students interested in taking this minor should contact the Office of Student Services in the College of Education. Please email educminors@umd.edu or call 301-405-2364 for more information or to arrange an advising appointment. The Student Services office is located in Room 1204, Benjamin.

Area 1	Area 2	Area 3	Area 4
Cognitive	**Social**	**Research**	**Lifespan**
EDHD201	EDHD221	EDHD306*	EDHD230
EDHD231	EDHD402	EDMS451	EDHD320
EDHD420	EDHD421		EDHD400
EDHD425	EDHD430		EDHD401
EDHD426	EDHD445		EDHD411
EDHD436	HONR219Y		EDHD412
EDHD460	HONR228R		EDHD413
			EDHD414
			EDHD440

Course selections might include three credits of EDHD319 (Selected Topics in HD), EDHD386 (Experiential Learning), or EDHD498 (Special Problems in Education). These courses involve directed study with a faculty advisor.

**EDHD306 cannot be excluded from any course plan. It is required for all EDHD minors.*

General Education Designations: History and Social Science (EDHD 201, 221, 230, 231, 320, 400, 411, 413, 440, & 460); Analytical Reasoning (EDHD306, EDMS451); Understanding Plural Societies (EDHD230); I-Series (EDHD 221, EDHD 231).

CORE Designations: EDHD230, HONR219Y, HONR228R

Advising

Advising is mandatory for all undergraduates desiring acceptance into the Early Childhood/Early Childhood Special Education Teacher Education Program. For more information or to schedule an advising appointment, contact the Office of Student Services at 301-405-2364.

Undergraduate Research Experiences

There are a variety of opportunities for undergraduate students to participate in research in Human Development. Faculty's research focuses on a wide number of topics pertaining to human development and learning.

Fieldwork Opportunities

An integral component of the Early Childhood/Early Childhood Special Education program at the University of Maryland is a series of field placements (N=5) of increasing complexity/responsibility that serve to complement university coursework. Field placements contribute to the programmatic mission of preparing knowledgeable, skilled and reflective practitioners who base their practice on theory, research, and pedagogy appropriate for the developing child. Interns observe, interact and teach children ages 0 (6 weeks per child care licensing) to 8 in authentic settings.

The first of these field placements typically occurs in the sophomore year (and occasionally during spring of the freshman year) and is associated with a course entitled EDHD220, Exploring Teaching in Early Childhood/ Early Childhood Special Education. Early childhood/Early Childhood Special Education candidates experience a semester-long practicum (one half day per week) with both preschool and school age children.

During fall of the junior year, the practicum is linked to EDSP420 Human Development and Learning in School Settings: Infants-Toddlers. Candidates complete selected observations of infants in child care centers, family childcare centers and community-based institutions that care for infants. These observations are followed by an eight-week placement in a child care setting in which candidates observe and interact with toddlers. The culminating *early field placement* begins in the spring semester of the junior year. Candidates experience a semester-long placement with three, four or five year olds in a Head Start or pre-kindergarten classroom. The candidates spend six hours per week in the classroom plus a full week of half days.

Internships

The capstone experience for the program is a yearlong internship in a public Professional Development School (PDS), which is a Title I school with large populations of students of color, English Language Learners and those who receive free and reduced meals. The internship is divided into two phases, approximately 110 days over the course of two consecutive semesters. For more details, contact the Early Childhood Education program advisor at 301-405-2364.

Honors Program

Human Development offers two University Honors seminars:

HONR219Y: Merging the Multiple Me's: The Developmental Origins of the Integrated Young Adult Self

HONR228R: Parenting and Poverty: The Effects of Growing Up Poor on Children's Development

Scholarships and Financial Assistance

The department offers the Marie Davidson scholarship to two undergraduate EC/ECSE majors each year. The department of Counseling, Higher Education and Special Education offers the Abbey scholarship to one undergraduate in EC/ECSE each year. In addition, the College of Education offers a number of other scholarships. Please visit www.education.umd.edu/studentinfo/scholarships.html for more information.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

Early Childhood/Early Childhood Special Education majors are eligible for the Ordwein Scholarship, the Abbey Scholarship and the Marie Davidson Award. Information is available in the Office of Student Services, Room 1204 Benjamin.

MEASUREMENT, STATISTICS AND EVALUATION (EDMS)

College of Education
3304 Benjamin Building, 301-405-2827
www.education.umd.edu/HDQM
hdqm@umd.edu
Chair: K. Mix (Prof & Chair)
Professors: G. Hancock
Associate Professors: J. Harring, H. Jiao, L. Stapleton
Assistant Professors: T. Sweet, J. Yang
Adjunct Associate Professors: K. Alvestad
Professors Emeriti: C. Dayton, R. Lissitz, G. Macready, R. Mislevy, W. Schafer

The Major

For Advanced Undergraduates

Measurement, Statistics and Evaluation in the College of Education offers a 5th Year MA program for undergraduates interested in quantitative methods. The purpose of this program is to allow highly motivated undergraduates the opportunity to develop their skills in quantitative methods. Students complete a BA (or BS) in their chosen major area along with an MA in Measurement, Statistics and Evaluation in just five years. Courses offered by this unit may be found under the following acronym: EDMS.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Individual Studies Program

2407 Marie Mount Hall, 301-314-0023
Director: Dr. Joan Burton
www.ivsp.umd.edu

The Individual Studies Program (IVSP) enables UM students to design their own interdisciplinary majors, subject to a proposal process, when their educational goals cannot be reasonably achieved within an existing departmental curriculum. The Individual Studies Program leads to a Bachelor of Arts or Bachelor of Science degree. IVSP degree programs focus on academic and intellectual growth through interdisciplinary study. Individually created student majors have recently included such titles as International Relations and East Asia, Global Health, 3D Environment Modeling and Design, Environmental Sustainability, Education and Social Change in Latin America, Healthcare Management for Diverse Communities, Global Development, Middle Eastern Studies, Asian American Policy and Advocacy, Women's Health, Digital Media in Society, and Urban Policy Studies.

For more information, see Office of Undergraduate Studies section in Chapter 6.

International Agriculture and Natural Resources

College of Agriculture and Natural Resources

0108 Symons Hall, 301-405-2078
www.agnr.umd.edu
tgallman@umd.edu

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction;

international aspects of the environment, agricultural production, development and sustainability, nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

Requirements for Certificate

The certificate requires 19-21 credits that may include courses taken toward other degree and general education requirements. Upon successful completion of the courses, with a grade of "C-" or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements.

Foreign Language

6-8 credits in a foreign language

International Courses

At least 9 credits from the following list of courses, at least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources:

ENST100 International Crop Production

ENST440 Crops, Soils, and Civilization

AREC365 World Hunger, Population, and Food Supplies

AREC433 Food and Agricultural Policy

BMGT392 Introduction to International Business Management

BMGT390 Competing on Quality in a Global Economy

BSCI365 International Pesticide Problems and Solutions

GEOG434 Agriculture and Rural Development

NFSC425 International Nutrition

AREC445 Agricultural Development, Population Growth, and the Environment

ECON440 International Economics

GVPT306 Global Ecopolitics

GEOG422 Population Geography

Travel Study or Travel Abroad

Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion.

Travel Study Seminar

1 credit Travel Study Seminar. Prerequisite: completion of the travel study requirement.

This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

Information Science (INFO)

College of Information Studies
4105 Hornbake Building, South Wing, 301-405-2038
infosci.umd.edu
infosci@umd.edu
Director: V. Diker (Undergraduate Program Director), N. Parker (Asst Dir, Assoc Dir), L. Sarin (Director of Academic Programs)
Professors: J. Bertot (Prof, Prof & Assoc Prov, Lecturer), B. Butler (Prof And Dean, Prof), A. Druin (Affiliate Prof, Prof), P. Jaeger (Prof), R. Marciano (Prof, Affiliate Prof), K. Marzullo (Dean, Visit Prof), D. Oard (Prof, Affiliate Prof), J. Preece (Prof)
Associate Professors: N. Elmqvist (Assoc Prof, Affil Assoc Prof), J. Golbeck (Assoc Prof, Affil Assoc Prof), K. Kraus (Assoc Prof), K. Shilton (Asst Prof), M. Subramaniam (Assoc Prof), P. Wang (Assoc Prof)
Assistant Professors: T. Clegg (Asst Prof), L. Findlater (Asst Prof, Aff Asst Prof), V. Frias-Martinez (Asst Prof, Aff Asst Prof), R. Punzalan (Asst Prof), B. St Jean (Asst Prof), Y. Tausczik (Asst Prof), J. Vitak (Asst Prof, Lecturer), A. Wiggins (Asst Prof)
Senior Lecturer: V. Diker (Senior Lecturer, Lecturer)
Lecturers: U. Gorham-Oscilowski (Lecturer), K. Heger (Lecturer), K. Lawley (Lecturer), K. Weaver (Lecturer), S. Winter (Lecturer)
Affiliate Professors: B. Bederson (Prof, Prof & Assoc Prov), B. Shneiderman (Affiliate Prof, Dist Univ Prof)
Affiliate Associate Professors: M. Kirschenbaum (Assoc Dir, Assoc Prof, Affil Assoc Prof), K. Norman (Assoc Prof)

Affiliate Assistant Professors: N. Diakopoulos (Asst Prof, Aff Asst Prof)
Professors Emeriti: J. Liesener (Prof Emeritus), C. Lowry (Prof Emeritus), M. Neuman (Assoc Prof Emerita), A. Prentice (Prof Emerita), D. Soergel (Prof Emeritus), M. White (Assoc Prof Emerita)
Visiting Faculty: M. Kurtz (Adjunct Prof), T. Srikantaiah (Visit Prof)

The Major

The field of information science, particularly in an iSchool, is a field concerned with the intersections of information, people and technology. Information science is an interdisciplinary field, drawing from other areas of study such as computer science, management, social science, education and the humanities, but with a focus on individual and institutional users of information and their information needs. Information Science students gain the knowledge and the skills for creating information systems, resources, and services that help address society's pressing needs in a variety of contexts and in a variety of private and public sector positions, ranging from financial services to healthcare, from information technology to consulting, from education to cultural institutions.

Undergraduate courses offered by this college may be found under the acronym: INST

Program Objectives

InfoSci students gain the knowledge and the skills for creating information systems, resources, and services that help address society's greatest needs. Through coursework, internships, extracurricular projects, and networking, InfoSci students build careers that will place them in leadership roles in information management, information technology, user-centered design, and data analytics.

Program Learning Outcomes

At the completion of this program, students will be able to:

1) Demonstrate an understanding of information design and management: the interrelationships among information consumers or creators, information content, and the conduits through which information flows.

2) Apply basic principles to the design, development and management of information to meet the needs of diverse users.

3) Assess the impact of existing or emerging technologies on information practices and the flow of information.

4) Employ state-of-the-art tools and techniques to create, manage, and analyze information.

5) Demonstrate an understanding of critical issues including the security, privacy, authenticity, and integrity of information.

Academic Programs and Departmental Facilities

The iSchool is home to a number of research centers and labs:

Trace Center
The Trace Center's purpose is to apply engineering, computer science, disability studies, public policy, and information science to prevent the barriers to, and capitalize on the opportunities presented by, current and emerging information and communication technologies. Our vision is of a world that is accessible and usable by people of all ages and all abilities – each experiencing ICT in a way they can understand and use. Founded in 1971, Trace has been a pioneer known for high-impact research and development, including access features implemented in computer operating systems, leadership in development of Web Content Accessibility Guidelines and many other accessibility standards, and techniques used to increase the accessibility of self-service kiosks in post offices, train stations, and airports. Trace is currently a leader in the development and large-scale deployment of a Global Public Inclusive Infrastructure that combines cloud computing, web, and platform services to make online information and services available for people facing accessibility barriers.

The Center for the Advanced Study of Communities and Information (CASCI) is a multidisciplinary research network, based at University of Maryland. CASCI exists to facilitate research and education that advances our understanding of the technology, information, and organization approaches needed to realize the potential of 21st century communities to support learning, facilitate innovation, transform science and scholarship, promote economic development, and enhance individual and civic well-being.

The Digital Curation Innovation Center (DCIC) was founded to lead research and education in digital curation and foster interdisciplinary partnerships using Big Records and archival analytics through public / industry / government partnerships. DCIC sponsors interdisciplinary projects that explore the integration of archival research data, user-contributed data, and technology to generate new forms of analysis and historical research.

The Human-Computer Interaction Lab (HCIL) transforms the experience people have with new technologies. From understanding user needs to developing and evaluating the technologies that support users' needs, the lab's faculty, staff, and students have been leading the way in HCI research and teaching for over 30 years. It is critical to understand how the needs and dreams of people can be reflected in future technologies. To this end, the HCIL develops advanced user interfaces and design methodology. The primary activities include collaborative research, publication and the sponsorship of seminars and brown bag talks, workshops and an annual symposium. The HCIL, though referred to as a lab, is actually a research center that is jointly administered by the iSchool and UMIACS, and has multiple labs, faculty, and students associated with it.

The Information Policy & Access Center (iPAC) is a response to the pressing need for research on the processes, practices, policies, and social issues that govern access to information in our increasingly digital information society. The iPAC is committed to studying what policies and/or technologies lead to equitable and inclusive information access, a digitally-ready

population, an informed and engaged public, access to Internet-enabled resources and technologies, or preservation of the cultural record, among key examples.

Admission to the Major

Students who are accepted to the university and list Information Science as the preferred major will start directly in our program. Students who wish to declare Information Science as a major must complete the change of major process. Please visit infosci.umd.edu or send an email inquiry to infosci@umd.edu for details.

Requirements for the Major

Students must earn a "C-" or better in all major requirements and an overall average of 2.0.

MATH115 (3) Pre-Calculus (or higher)
PSYC100 (3) Introduction to Psychology

STAT100 (3) Elementary Statistics and Probability
INST 201 (3) Heroes and Villains in the Age of Information (formerly INST 301))
Introduction to Programming for non-CS Majors (3-4) (Several courses exist which fulfill this requirement, including but not limited to INST 206 - Introduction to Programming for Information Science, CMSC 106 - Introduction to C Programming, and CMSC 122 - Introduction to Computer Programming Via the Web. Please check with your advisor to make sure that a particular course fulfills this requirement before registering.)

Major Core Requirements
Students must complete the following ten core courses.

INST201 (3) Heroes and Villains in the Age of Information (formerly INST301)
INST302 (3) Information User Needs and Assessment

INST303 (3) Information Organization
INST304 (3) Statistics for Information Science
INST305 (3) User-Centered Design

INST306 (3) Object-Oriented Programming for Information Science
INST307 (3) Database Design and Modeling
INST312 (3) Teams and Organizations
Technologies, Infrastructure and Architecture (3)
Integrative Capstone (3)

Major Elective Requirements
Students must complete at least 15 credits of INST-coded major electives. Check Testudo for currently available INST elective courses.

Data Science Specialization
The following five courses make up the Data Science Specialization. By taking these five courses as a set, student will fulfill both the Data Science Specialization requirements, and the 15-credit major elective requirement.

Dynamic Web Applications (3)
Decision Making for Information Science (3)
Data Visualization (3)
Data Sources and Manipulation (3)
Advanced Data Science (3)

Advising

Advisors will help you make informed decisions and feel confident about your plans, which will assist you in meeting your program goals. An academic advising relationship is a partnership between you and your advisor. Your advisor will assist in helping you understand your degree requirements and your options, but you make the decisions, you are in charge of your education!

Advising is mandatory for all Information Science (InfoSci) students. Each semester prior to registration, current InfoSci students are required to meet with the advisor to review courses taken and identify courses students plan to take. This review will ensure students are progressing through the major in a satisfactory manner. Be sure to schedule regular advising meetings and make sure you are on track to meet your academic and professional goals.

Please view additional advising resources and information here: https://ischool.umd.edu/infosci-advising

Undergraduate Research Experiences

Opportunities for undergraduate research experience in the iSchool's research centers become available from time to time. Participation in an on- or off-campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the Information Science program staff for information on performing research in an iSchool center or lab and contact the Campus Career Services office for assistance in obtaining off-campus positions or experiences. The program also distributes internship opportunities on Twitter @InfoSciUMD.

Internships

Students are strongly encouraged to complete at least one internship during their course of study. The iSchool hosts an internship and networking fair each year to help students find internship sites. Students should also consult the Career Center for additional internship opportunities.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The iSchool offers the following awards: Beyond these Walls Student Travel Awards provides financial support to allow students from any program at the College of Information Studies to attend local and national conferences, present research, and gain experience and exposure to professionals in our field; the iSchool Alumni Chapter Scholarship is awarded annually to an iSchool student with demonstrated need pursuing any degree program at the College; the Mary Edsall Choquette Study Abroad Award provides financial support to enable a student who is currently enrolled in any program at the College of Information Studies to participate in one of the iSchool's study abroad opportunities; the Dean’s Award for an Outstanding iSchool Project is presented to an iSchool student for an outstanding design or development project completed for an iSchool course; the Laurence B. Heilprin Award is presented to an iSchool student or a group of students (which includes at least one iSchool student) for an outstanding paper on a topic in library and information science which has been written for an iSchool course.

Information Systems: Specialization Business

For information, see Decision, Operations, and Information Technologies elsewhere in Chapter 7.

International Business

For information see Logistics, Business and Public Policy.

Italian Studies (ITAL)

College of Arts and Humanities
3106 JimÃ©nez Hall, 301-405-4025
www.italian.umd.edu
Associate Professors: J. Falvo
Assistant Professors: M. Resmini
Senior Lecturer: S. Amodeo (Distinguished Senior Lecturer), F. Deigan
Professors Emeriti: C. Russell

The Major

The language of Italy has long been known as the language of culture. Italian is the language of art, of music, and of poetry. It is also the language of a wealthy, modern industrialized nation now playing an active role in a new United Europe. It is the intent of the Italian program (ITAL) to bring its students to a linguistic and cultural level of understanding, so that they are able to participate actively in on-going events, both cultural and technological, in this dynamic country. The Italian program offers a range of courses well suited not only for students who are preparing themselves for graduate study, research or other professional development in the field of the humanities, but also for those who are specifically seeking a teaching career in education.

Program Learning Outcomes

Students will be able to communicate effectively in writing in Italian; express knowledge of Italian culture and society orally at intermediate level according to ACTFL Standard scale, and summarize; understand and interpret written texts in a variety of genres and topics.

Placement in Courses

http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Requirements for Italian Major: 39 credits
Prerequisites: Successful completion of Italian language through intermediate level (ITAL203 or ITAL122)

I. Major Core Requirements (18 credits)

ITAL204	Review Grammar and Composition
ITAL207	Reading and Writing in Italian
ITAL211	Intermediate Oral Communication
ITAL301	Italian Composition
ITAL311	Advanced Oral Expression: Current Events

ITAL401	Advanced Composition and Style

II. Additional Requirements (9 credits)
A. One additional course at the 2xx level in literature or culture; choose one from the following:

ITAL251	Introduction to Italian Literature
ITAL261	Cuisine, Culture and Society in Italy Yesterday and Today

B. Two additional courses at the 3xx level in literature or culture; choose two from the following:

ITAL351	Survey of Italian Literature I: From the Middle Ages to Renaissance
ITAL352	Survey of Italian Literature II: From the Renaissance to the Present
ITAL361	Italian Society and Culture: From Fascism to the 1970's
ITAL362	Italian Society and Culture: From the 1970's to the Present

III. Three courses at the 4xx level (12 credits)
N.B. For each course at the 4xx level, Italian majors must register for a 1-credit colloquium (ITAL478x)

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Requirements for the Minor

Italian Language and Culture

School of Languages, Literatures, and Cultures (SLLC)
www.italian.umd.edu

The minor in Italian Language and Culture is an official recognition that a student has reached a certain level of proficiency in the target language. The minor will serve as a validation to potential employers of the student's proficiency in Italian.

18 credits are required for this minor:

Prerequisite: Successful completion of ITAL203 Intensive Intermediate Italian

Minor Requirements

ITAL204 Review Grammar and Composition

ITAL207 Reading and Writing in Italian

ITAL211 Intermediate Conversation

ITAL301 Italian Composition and Style

ITAL311 Italian Conversation: Current Events

One additional course taught in Italian at the 3xx or 4xx level

- All courses must be taught in Italian
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of the Study Abroad Program in Italy, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students who begin their study as native/fluent speakers should seek the advice of the Italian advisor before choosing the courses they will use to replace the core minor courses.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Dr. Giuseppe Falvo gfalvo@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Lesbian, Gay, Bisexual and Transgender Studies (LGBT)

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.lgbts.umd.edu
womensstudies@umd.edu

The Department of Women's Studies offers an interdisciplinary undergraduate certificate and a minor in Lesbian, Gay, Bisexual, and Transgender Studies (LGBT). These are designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive.

The Novak Family TerpStart Endowed Scholarship is awarded to an undergraduate student participating in the department's Lesbian, Gay, Bisexual, and Transgender Studies Program. For information and requirements, contact the Director of Undergraduate Studies (301-405-7710).

For more information, see Minors or Certificate Programs in Departments, Majors, Programs.

Japanese (JAPN)

College of Arts and Humanities
2106 JimÃ©nez Hall, 301-405-4025
www.japanese.umd.edu
Professors: S. Ramsey
Associate Professors: M. Mason, L. Yotsukura
Senior Lecturer: K. Akikawa, M. Inoue, E. Yamakita
Lecturers: R. Del Greco

The Major

The Japanese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, and the media. Students may also consider a double major in Japanese and another discipline, such as business, international relations, economics, or journalism. After completing the prerequisite of one year of language (12 credits - JAPN101 Elementary Japanese I, six hours per week, fall; and JAPN102 Elementary Japanese II, six hours per week, spring), students must complete 42 credits for the major course requirements (24 language, 6 civilization/history, 12 elective).

Program Learning Outcomes

Students will be able to ask and answer questions (including requests) about a range of everyday topics, using passable grammar, vocabulary, and speech style(s) appropriate to specific social contexts. They will also be able to use a Kanji-English dictionary and a Japanese-English dictionary (either electronic or hard copy) in order to look up readings of Chinese characters and English meanings. Finally, they will also demonstrate strong skills in interpreting a variety of literary, cultural, and historical texts and indicate a nuanced and deep understanding of the diversity of Japanese literature(s) and culture(s).

Placement in Courses

http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Language Requirements:

JAPN201	Intermediate Japanese I	6
JAPN202	Intermediate Japanese II	6

JAPN301	Advanced Japanese I	6
JAPN302	Advanced Japanese II	6

Civilization/History Requirements:

Option I:

HIST284	East Asian Civilization I	3
HIST483	History of Japan Since 1800	3

Option II:

HIST285	East Asian Civilization II	3
HIST482	History of Japan to 1800	3

ELECT	Japanese Literature (3xx-level or above)	3
ELECT	Japanese Linguistics (3xx-level or above)	3
ELECT	Japanese Electives (3xx-level or above)	3

Note: Electives must be in Japanese language, literature, linguistics, or other East Asian subjects (one must be in the area of Japanese linguistics and one in the area of Japanese literature), and are subject to approval by the student's advisor. Courses that fulfill the literature requirement for the major include JAPN317, 414, 415, 416, 418 and 498. Courses that fulfill the linguistics requirement for the major include JAPN421, 422, 428, and 438. Courses that fulfill general elective requirements are JAPN 401, 402, 407, 411, and EALL300. Additionally, pertinent courses at the 3xx or 4xx level in History and Art History can apply toward the general elective requirements.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Requirements for the Minor

Japanese

School of Languages, Literatures and Cultures
www.japanese.umd.edu

This 15-credit minor is designed to provide a concentration in Japanese language and an introduction to the academic fields of Japanese literature and linguistics. Additionally, the minor will allow Japanese heritage speakers the opportunity to engage in language study for special purposes (such as Business Japanese, Diplomatic Translation, or Classical Japanese) as well as in the study of Japanese linguistics and literature.

Requirements for the 15 credit minor in Japanese include:

A. 6 credits of Japanese language courses, selected from the following list, with placement based on the student's language proficiency: JAPN202(6), JAPN301(6), JAPN302(6), JAPN401(3), JAPN402(3), JAPN403(3), JAPN404(3), JAPN405(3), JAPN406(3), JAPN411(3), JAPN412(3), JAPN499 (3)

B. One 3 credit course focusing on Japanese linguistics selected from the following list: JAPN421, JAPN422, JAPN428, JAPN438

C. One 3 credit course focusing on Japanese literature selected from the following list: JAPN217, JAPN298, JAPN317, JAPN414, JAPN415, JAPN416, JAPN418, JAPN498

D. An additional 3 credits from one of the three lists above.

- At least nine of the fifteen hours must be at the 3xx or 4xx level.
- Students must receive a "C-" or better in all courses used for the minor.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than 6 of the 15 credits toward the minor may be taken at an institution other than UMCP.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Ms. Makiko Inoue minoue@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Annual Language Career and Internship Fair

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information see the SLLC website: http://www.sllc.umd.edu/.

Student Societies and Professional Organizations

Individual SLLC departments hold annual induction ceremonies for students who are eligible for honor society membership.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Jewish Studies (JWST)

College of Arts and Humanities
4141 Susquehanna Hall, 301-405-4975
www.jewishstudies.umd.edu
jwst-contact@umd.edu
Director: C. Manekin (PHIL)
Professors: H. Lapin (HIST/JWST), C. Manekin (PHIL), Y. Peri (JWST), M. Rozenblit (HIST)
Associate Professors: B. Cooperman (HIST), M. Grossman (JWST), S. Jelen (ENGL/JWST), R. Manekin (JWST), E. Zakim (SLLC)
Assistant Professors: S. Hazkani (JWST), M. Suriano (JWST)
Affiliate Professors: J. Glass, J. Herf (Dist Univ Prof), R. Igel, A. Karamustafa, F. Keshavarz-Karamustafa, S. Selden, S. Sosnowski, S. Telhami, M. Zilfi
Affiliate Associate Professors: A. Borrut, L. Felbain, J. Freidenberg, S. Khamis, G. Strauch, P. Wien
Adjunct Assistant Professors: A. Mahalel (JWST)
Associate Clinical Professor: A. Feuer (JWST)
Associate Research Professor: P. Scham (JWST)
Professors Emeriti: A. Berlin (Emerita)
Visiting Faculty: P. Peri (JWST)

The Major

The Major in Jewish Studies provides undergraduates with a framework for the organized and interdisciplinary study of the history, philosophy, and literature of the Jews from antiquity to the present. Jewish Studies draws on a vast literature in a number of languages, especially Hebrew and Aramaic, and includes the Bible, the Talmud, and medieval and modern Hebrew literature. Yiddish language and literature compose an important sub-field. Courses offered by this department may be found under the following acronym(s): JWST, HEBR, ISRL, and RELS.

Program Objectives

The Meyerhoff Center and Program for Jewish Studies encourages research and provides instruction about the rich history and culture of the Jewish people from earliest times to the present day. Dedicated to the highest standards of scholarship, the program offers a wide array of courses in Hebrew Language and Literature, Jewish History, Bible, Rabbinics, Jewish Philosophy, and Yiddish Language and Literature. These courses form one of the largest undergraduate Jewish Studies programs in North America. In addition, the Jewish Studies program supports faculty research projects and organizes frequent academic conferences and lectures in order to bring the fruits of scholarship to a wider public. The Jewish Studies Program seeks to provide undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies, understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are, to a large degree, inseparable. Students are expected to master the Hebrew language and acquire facility in reading, understanding, analyzing, and interpreting texts both in Hebrew and in English translation. In addition, students should be able to pursue independent research and to argue coherently and persuasively in writing.

Program Learning Outcomes

The Jewish Studies Program seeks to provide undergraduate majors with an appreciation for the interdisciplinary nature of Jewish Studies (understanding that Jewish literary texts, Jewish history, and Jewish culture and thought are to a large degree inseparable). Students who complete the major should acquire the following knowledge and skills:

1. Mastery of modern Hebrew at the advanced level;
2. Mastery of the chronological development and major themes of Jewish history and culture;
3. Ability to read, analyze, and interpret texts in classical (biblical, rabbinic, medieval), and/or modern literary Hebrew; and
4. Ability to conduct independent research and analysis and represent their results in written form, showing mastery of academic tools and formal conventions.

Academic Programs and Departmental Facilities

Study Abroad

The Jewish Studies program encourages students to study internationally. In addition to

programs run by the University, students study at academic programs in Israel, Europe, and elsewhere. In particular, majors studying in Israel gain the opportunity to improve their Hebrew language skills by taking ulpan, the intensive course in Hebrew offered at those universities, and by practicing their Hebrew with Israelis. In addition, students can take courses in Israeli society and politics, Middle East Studies, and other courses not usually offered at College Park. Scholarship funds are available to majors and non-majors. Please see the section on "Scholarships and Financial Assistance" for more information.

The Library

The Jewish Studies program has a large and growing Judaica collection at the University of Maryland Libraries that aims to become a major resource and repository for the entire area. The collection includes materials in Jewish history, Hebrew and Yiddish literature, the Bible, Talmud, medieval philosophy, Jewish women, theater, the Holocaust, and modern Israel. In addition to scholarly books and periodicals written in the English, German, Hebrew, Yiddish, Ladino, Arabic, French, Italian, and Slavic languages, the collection includes rare books, musical scores, video and audio recordings, facsimile copies of historical documents, and manuscripts. Students may work with Dr. Yelena Luckert, the Judaica Librarian, on their projects and assignments.

Israel Studies

The Joseph and Alma Gildenhorn Institute for Israel Studies offers a wide array of lectures, programs, courses, and study abroad opportunities, as well as an academic minor. Jewish Studies majors and minors, as well as other students in the university, can benefit from these programs.

Religious Studies

The Minor in Religious Studies is an 18-credit course of study that provides students with the opportunity to learn about religion in cross-cultural and trans-historical perspectives. A core course introduces students to the study of world religions, while other courses range widely in their focus, allowing students to learn more about sacred texts, traditions, practices, philosophies, and material culture. Courses may focus on a single religious tradition, a region or period of history, or a concentrated approach to the analysis of religion and religious culture. Courses for the minor are drawn from such departments and programs as Anthropology, Art History and Archaeology, Classics, Government and Politics, History, Honors, Jewish Studies, Philosophy, and Women's Studies.

Admission to the Major

Hebrew proficiency through Intermediate Hebrew I is a prerequisite for the major, but students can declare the major prior to fulfilling this prerequisite and can take Jewish Studies courses while building their Hebrew skills. Many students may choose to prepare for the Hebrew

requirement by studying Hebrew on their own or by enrolling in the University's sequence of beginning and intermediate Hebrew courses.

Placement in Courses

The Foreign Language Placement Assessment in Hebrew is used to determine in which Hebrew course students should enroll. For more information, contact hebrew-advise@umd.edu.

Requirements for the Major

The undergraduate major requires 48 semester hours (27 hours minimum at the 3xx-level or above). Students enroll in 39 credits of Jewish Studies courses, and 9 additional credits from a field or fields outside of Jewish Studies. Jewish Studies courses for the major may include courses offered by Jewish Studies or cross-listed with other units.

By satisfying the Hebrew language requirements of the major, Jewish Studies majors will fulfill the Global Engagement Requirement of the College of Arts and Humanities. A minimum "C-" is required in all courses offered toward major requirements. An overall GPA of 2.0 or greater in the major is required for graduation.

1. Language Prerequisites

Please Note: Students can declare the major at any time and take other Jewish Studies courses while they are working to satisfy these prerequisites.

Hebrew language skills corresponding to the second-year level (HEBR211: Intermediate Hebrew I or the equivalent)

Students may meet the prerequisite through successful completion of the lower-level sequence (HEBR 111, 112, and 211, or the equivalent). Students with a background in Hebrew will be placed into the appropriate course by the Hebrew faculty. Students with a strong background may be deemed to have satisfied the Hebrew prerequisites by the Hebrew faculty.

2. General Requirements (18-21 credits)

Majors in Jewish Studies complete three core courses and fulfill an additional four requirements for a total of 19 to 22 credits in General Requirements (credit hours for Hebrew language are flexible, as discussed below).

A. History (3 Credits)

- JWST 233: Why the Jews? Historical and Cultural Investigations

B. Literature (3 Credits)

- JWST 272: Introduction to Jewish Literature

C. Thought, Religion or Culture (3 Credits)

Students may choose from:

- JWST 250: Fundamental Concepts of Judaism
- JWST 262: Hebrew Bible/Old Testament
- JWST 304: Critical Approaches to Israeli Culture
- JWST 452: Golden Age of Jewish Philosophy
- JWST 491: Judaism and the Construction of Gender
- JWST 492: Sex, Gender, and Jewish Identity
- Others by petition

D. Hebrew Language (3-6 Credits)

- HEBR 212 (6 credits) *or* HEBR313 (3 credits) *or* a 3xx or 4xx-level course that is taught in Hebrew.

E. Hebrew Text course (3 Credits)

- Any course in which texts are read in Hebrew. Students who have a sufficient background in other Jewish languages (such as Aramaic, Judeo-Arabic, and Yiddish) may fulfill the text course requirement through one of these courses.

F. Research Seminar (3 Credits)

- Research seminars are taught on a variety of topics within the field of Jewish Studies; seminars are general and methodological in their perspective, designed to bring together interests across a variety of subfields of Jewish Studies. Whenever possible, students should take a research seminar that aligns with their chosen area of specialization (see below).
- JWST 409: Research Seminar in Jewish Studies

3. Area of Specialization/Tracks (15 credits)

In consultation with an advisor, majors select an area of specialization in addition to their general Jewish Studies coursework. Up to six credits of this area of specialization may be at the 1xx or 2xx-level or 3xx or 4xx-level, while the remaining nine credits must be at the 3xx or 4xx-level or above. Approved specializations include:

Jewish History and Society (JH)

Jewish Religion and Thought (JR)

Jewish Literature and Culture (JL)

Israeli Society, Politics, and Culture (IS)

Hebrew Language and Texts (HL)

All Jewish Studies courses fall into at least one (and as many as three) of these areas of specializations. Students may petition to have courses count toward a particular area of specialization.

4. Electives (6 credits)

Students take two Jewish Studies courses (6 credits) as electives toward their major. 3 credits must be at the 3xx or 4xx-level.

5. Supporting Courses (9 credits)

Students take nine (9) credits in courses outside Jewish Studies, of which at least six (6) credits must be at the 3xx-level or above. Supporting courses are determined in consultation with the advisor. They should provide context for the area of specialization.

Note: A current listing of the Department's courses and assignment of courses to the above categories may be found on the Jewish Studies website. Students are reminded that, if there is a topic that doesn't figure in the list of courses, they are welcome to propose an independent study.

Mentoring: Students majoring in Jewish Studies will be assigned a faculty mentor from among the faculty specializing in their area of specialization. Students should consult with their faculty mentor as they plan their course of study.

Requirements for the Minor

Minor in Jewish Studies

The Minor in Jewish Studies offers a broad overview of the principal aspects of Jewish Studies as a field. Students are encouraged to take courses in a variety of areas through a combination of required fields and general electives.

Requirements: 15 credits towards the Minor in Jewish Studies are to be distributed as follows:

History	(3 credits)
Literature	(3 credits)
Thought, Religion, or Culture	(3 credits)
Electives	(6 credits)

- A minimum of 9 credits must be at the 3xx or 4xx-level.
- All credits must be earned with a grade of "C-" or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the Director of the Jewish Studies program.

- Up to 3 credits of 1xx or 2xx-level Hebrew or Yiddish language study may be credited toward the minor. In exceptional cases, students may petition to have other languages included.

Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the minor.
- At least six credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with university policy, no more than six credits may also be applied to a major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Minor in Religious Studies

Religious Studies is an interdisciplinary field that enables students to study the texts, culture, history, beliefs, and practices of the religions of the world, present and past. The minor in Religious Studies draws from a wide range of departments and programs (including Anthropology, Art History, Classics, English, History, Jewish Studies, and Philosophy) and offers the opportunity for both in-depth and wide-ranging study. A required core course, RELS216, introduces students to religions of the world and to the academic study of religion (In place of this course, students may take RELS289). In addition to this course, students are required to take three courses at the 3xx or 4xx-level and another two at the 1xx, 2xx, 3xx, or 4xx-level. Completion of coursework includes fulfillment of a breadth requirement, which demonstrates that students have been exposed to a variety of religious traditions, periods, and geographic regions. Selection of courses in consultation with the advisor will ensure that students complete this breadth requirement.

Many courses are now offered with the RELS prefix. Other regularly-offered courses that may be counted toward the minor are: ARTH200, ARTH201, ARTH250, ARTH290, ARTH314, ARTH376, CHIN316, CLAS170, CLAS470, ENGL262, ENGL263, ENGL277, ENGL477, GERM283, GERM287, HIST111, HIST120, HIST282, HIST284, HIST306, HIST332, HIST480, PHIL236, and many courses in JWST and HONR. Other courses may be taken with the permission of the minor advisor.

Requirements:

- RELS216 or RELS289I: Introduction to the Study of World Religions.
- Three courses at the 3xx-level or above. These courses can be in any of a variety of subjects, chosen in consultation with an advisor. See Breadth requirement below.
- Two additional courses at the 1xx, 2xx, 3xx, or 4xx-level. Chosen in consultation with an advisor. See Breadth requirement.

Breadth requirement

The breadth requirement ensures that students are exposed to a diversity of religious phenomena. Most Religious Studies students will complete this requirement simply by selecting from the wide variety of courses available to them. Students with particular interests (in a single approach, like Art History, or a single setting, like contemporary North America) will need to take at least one course that falls outside their particular focus of interest. Students will need to demonstrate:

A. Exposure to a diversity of religious traditions (understood to include African religions, Buddhism, Christianity, Hinduism, Islam, and Judaism, among others) in coursework that extends beyond a single geographic area (such as the Americas, Asia, or the Mediterranean world).

B. Exposure to diverse temporal periods (including antiquity, the medieval and early modern periods, and modernity).

C. Experience of multiple approaches to religious phenomena or the study of religion (for example, art history, philosophy, historical approaches, and comparative methods).

D. Depth: At least one course must incorporate the focused study of a single religious tradition or cluster of traditions (see item A for traditions).

Examples: A student with an academic focus in religions of the ancient Mediterranean might complete the breadth requirement with a single course on Asian religions. A student concentrating on art historical approaches to religion might take one course in philosophy or literature. A student whose interests run to comparative and cross-cultural coursework might take a course in the focused study of a single tradition.

- A minimum of 9 credits must be at the 3xx or 4xx-level.
- All courses must be passed with a grade of "C-" or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses is available from the advisor to the RELS program.
- At least six credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Minor in Israel Studies

www.israelstudies.umd.edu/undergraduate-minor.html

Students doing a Minor in Israel Studies will study the history, culture and political structure of Israel and its place in the Middle East. Students from all majors are encouraged to apply.

Program Requirements

The minor consists of 15 credits, and is organized around the following requirements:

Required Core Courses (9 Credits)

ISRL342/HIST376*	History of Zionism and the State of Israel	3 credits
ISRL448	Seminar in Israel Studies – seminar topics change each semester	3 credits
Middle East Studies Course**	One course in the area of Middle East Studies *(see following list)*	3 credits

To fulfill the Middle East Studies requirement, students must take one of the courses listed below or a comparable course. This list is not complete; other courses may be substituted with the approval of the Advisor. Students may also take one additional course from this list as an elective for credit toward the Minor.

ARAB221	The Arab World Today through Readings in Translation	
HIST120	Islamic Civilization	
HIST314	Crisis and Change in the Middle East	*prereq: one prior History course*
HIST491	History of the Ottoman Empire	
GVPT455	Contemporary Middle Eastern Politics	*prereq: GVPT280 or 282*

*A comparable course at another university may substitute for this; consult the Minor Advisor

** Other courses in Middle East Studies at UMD or elsewhere may be substituted for those on this list in consultation with the Advisor. HIST, COMM, GVPT, and SLLC all regularly offer special topics courses on the Middle East.

Elective Courses (6 Credits)

JWST142 Introduction to Modern Israel

ISRL289I Fundamental Questions of the Israeli-Palestinian Conflict

ISRL448A: Israeli Politics and Government

ISRL448B: Israeli Society

ISRL449 Advanced Topics in Israel Studies

*HEBR111, 112, 211, 212
*ARAB104, 105, 107, 204, 205, 207, 304, 305
JWST304 Critical Approaches to Israeli Culture
HEBR313 Conversation and Composition I
HEBR314 Conversation and Composition II
HEBR381 Introduction to Hebrew Cultural Studies (taught in Hebrew)
HEBR382 Israeli Media (taught in Hebrew)
JWST478 Readings in Modern Hebrew (if topic appropriate: must be approved)
JWST471 Modern Hebrew Literature in Translation
JWST249 Special Topics in Israel Studies
JWST349 Special Topics in Israel Studies
JWST449 Advanced Special Topics in Israel Studies
JWST488 Independent Study in Israel Studies

* No more than 3 credits of language instruction below the 3xx-level may be credited toward the Minor.

Special Topics in Israel: (Topics change on an annual/semester basis, generally taught by distinguished visiting faculty.)

- ISRL249: Special Topics in Israel Studies
- ISRL349: Special Topics in Israel Studies
- ISRL449: Advanced Topics in Israel Studies

Special Topics in recent years have included: The Arab-Israeli Conflict through Film; Introduction to Israeli Cinema; Immigration & Ethnicity in Israel; Israel Politics and Society; Women and Gender in Israel; Public Culture in Israel; Israel Society as Seen Through Literature & Culture; Cultural Diversity and Multiple Identities in Contemporary Israeli Society; Society Politics and Mass Media in Israel; The Theater of Terror: Modern Terrorism and Mass Media; Israeli Politics for Young Leaders, and more.

Other appropriate courses may be taken as electives if approved by the Israel Studies Advisor.

Restrictions:

- Coursework must include at least 9 3xx or 4xx-level credits, of which 6 of those credits MUST be taken at University of Maryland. These include credits earned in UM Study Abroad programs.

· A student may use a maximum of 6 credits (two courses) to satisfy requirements for both a major and a minor. Courses completed for one minor, may not be used to satisfy the requirements for another minor.

· No courses with an earned grade below "C-" may count towards the minor.

· An overall GPA of 2.0 in the minor is required for graduation.

· Up to 2 courses may be taken at another university if the courses are approved by the Israel Studies Advisor. These would include credits earned in non-UM Study Abroad Programs.

To make an appointment to explore or declare a minor go to: www.arhu.umd.edu/undergraduate/academics/minors

Students should also contact **Prof. Paul Scham,** *Israel Studies Advisor*
pscham@umd.edu
4141 Susquehanna Hall
College Park, MD 20742
Or visit: www.israelstudies.umd.edu

Advising

Majors in Jewish Studies have mandatory advising every semester. They must meet with the advisor before being allowed to register for classes for the next semester. You can reach the Jewish Studies advisor at jwst-advise@umd.edu or 301-405-7640.

(Students with an additional major will have additional advising requirements depending on the major and/or college of the additional major.)

Please note that Jewish Studies majors must also meet with a College of Arts and Humanities advisor:

- during their first semester
- when they complete 45-55 credits
- when they complete 86-100 credits

Students who wish to minor in Jewish Studies must meet with the advisor at least once, mainly to declare the minor.

What to expect from advising

During advising meetings, the advisor will chart a student's progress through the major or minor. The kinds of questions that the advisor will ask include "what courses are you taking," "what courses do you intend to take?," "are you interested in studying abroad?," and "how are you doing in your classes?"

The advisor will make notes and go through the Major or Minor Advising Form to ensure that the student understands the major's or minor's requirements, what courses to take, and when to take them. Every student will get a copy of his or her Major or Minor Advising Form at the end of each meeting for his or her own records.

Note that students who have not yet declared Jewish Studies as their major must meet with the Jewish Studies advisor and then meet with an ARHU advisor. During this first meeting with the Jewish Studies advisor, the student will learn about the Four-Year Plan, which is a schedule of classes developed by ARHU and Jewish Studies for the typical Jewish Studies major to follow. It outlines which courses should be taken during which semesters.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

What to bring to an advising meeting

When students come to a meeting with the Jewish Studies advisor, they should bring a list of courses they are thinking about taking, as well as any other requirements they need to fulfill for another major or minor.

Other documents, such as the requirements for another major or minor, descriptions of courses taken abroad, and previous Major or Minor Advising Forms, are also helpful to bring.

Honors Program

The Honors Program in Jewish Studies is designed to encourage Jewish Studies majors with excellent grades and strong academic interests to pursue an individual research project of their own design, in consultation with and under the direction of a faculty advisor. The Program consists of twelve credits taken in a student's Junior and Senior years, culminating in the writing of an honors thesis. Students who complete the Honors Program are deemed to have completed the research seminar requirement for the major, typically completed through JWST409.

Junior Year: Students apply for admission to the Honors Program in the Fall of their Junior year, and, upon admission, enroll in the Honors Seminar (JWST408) (3 credits) in the Spring of their Junior year. During this time students are expected to develop a general research plan to be approved by the prospective thesis advisor. Thesis advisors will generally belong to the regular or affiliate Jewish Studies faculty. Other faculty may serve as thesis advisor with the written permission of the Director of Undergraduate Studies.

Senior Year: In the Fall of their Senior year students select an upper-level course (3 credits) closely related to their research agenda in consultation with the advisor. This may include a regularly offered undergraduate course, independent study, in which case students are encouraged to apply for an Honors Option for that particular course. In addition, students may request permission to enroll in a graduate-level course to complete this part of their requirement. Students who enter the Honors Program with a clearly defined research interest may complete this requirement in their Junior year.

In addition, students take 6 credits of JWST418: Honors Thesis Research, under the direction of their thesis advisor. Typically these will be divided between the Fall and Spring semesters. Students are expected to work out with their advisors clear goals that contribute to the thesis as a whole for each semester of thesis research, and will be graded each semester on the basis of having met those goals. In the second semester, the principal goal will be the completed thesis.

Student Societies and Professional Organizations

Tzabim (Turtles) -- The Jewish Studies Student Organization

The goal of the Jewish Studies Student Organization (Tzabim) is to provide non-curricular support for Jewish Studies majors and minors. Such support includes career guidance, cohort development, networking activities, social events, and other programs designed by the UJSO's members. Led by members, Tzabim responds to students' needs that extend beyond the curricula of the Jewish Studies Program.

All Jewish Studies majors and minors, as well as other students interested in Jewish Studies, are encouraged to attend meetings and get involved.

Scholarships and Financial Assistance

The Joseph and Rebecca Meyerhoff Center and Program for Jewish Studies offers scholarships for study abroad and special domestic study programs that have a clear relationship to Jewish Studies. Students wishing to study in Israel are especially encouraged to apply. Applications for scholarships are accepted once in the Fall and once in the Spring. Specific deadlines, as well as the application form, can be found at www.jewishstudies.umd.edu/scholarships. For more information, please call the Center at 301-405-4975.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Journalism

The Philip Merrill College of Journalism offers B.A., M.A., M.J. and Ph.D degrees. The College also offers a Saturday-only Master's Professional Studies Certificate Program. For more information and undergraduate degree requirements, see the Philip Merrill College of Journalism entry under "The Colleges and Schools."

Kinesiology (KNES)

School of Public Health
2351 School of Public Health Building, 301-405-2450
www.sph.umd.edu/KNES
advisingknes@umd.edu
Chair: B. Hatfield (Prof & Chair)
Professors: D. Andrews, J. Clark, J. Hagberg (Graduate Director), B. Hurley, S. Iso-Ahola, S. Roth
Associate Professors: S. McDaniel, M. Rogers, J. Shim, J. Smith (Honors Director)
Assistant Professors: R. Gentili, S. Glancy, S. Jette, R. Miller, J. Roberts
Instructors: E. Brown, M. Scott (Undergraduate Program Coordinator)
Lecturers: E. Brody, D. Collier, M. Friedman, A. Ginsberg, J. Goldstein, J. Klossner, K. Klotz, R. Lindle, J. Montfort, A. Palla-Kane, L. Plotkin, A. Romeo (MPH Coordinator), L. Rush, A. Shums, D. Vacante, B. Weiner, J. Zimmerman (Physical Activity Program Coordinator)
Assistant Research Professor: D. Deglau, T. Kiemel
Professors Emeriti: D. Clarke, C. Dotson, C. Ennis, B. Franks, J. Hult, J. Jeka, D. Kelley, S. Phillips, D. Steel, J. Wrenn

The Major

The Department of Kinesiology has one undergraduate major, the BS in Kinesiology. All majors in the department gain conceptual and experiential knowledge in the anatomical, physiological, psychological, sociological, and historical perspectives on physical activity, movement, exercise and sport. Today there are over 1000 undergraduates majoring in Kinesiology who will go on to further study in health professions (such as physical therapy, occupational therapy, medicine), sport-related professions (sport management, sport marketing, coaching), fitness-related professions (exercise leader, personal trainer) and other health and physical activity-related careers. Others will pursue a graduate program in research in Kinesiology (MS, MPH, PHD). There are currently 10 students in the departmental Honors Program.

A brief description of the program follows. Students should obtain a current Student Handbook for the Kinesiology degree on the web at www.sph.umd.edu/KNES. The program requires a grade of "C-" or better in all required course-work.

Program Objectives

The overall mission of the Department of Kinesiology is to improve the health and wellbeing of all people through an interdisciplinary understanding of physical activity in its many forms (e.g., exercise, sport, movement activities of daily living). The Department of Kinesiology is committed to providing students with an excellent education in Kinesiology; generating empirical evidence about physical activity; and providing services to the state, nation, and world by furthering and sharing our knowledge and expertise about physical activity.

The undergraduate educational mission of the Department of Kinesiology is to enable students to develop an interdisciplinary knowledge of kinesiology, value physical activity and its integration

within the discipline, and understand how kinesiologists work to improve the health and well-being of individuals and society.

Program Learning Outcomes

At the completion of the B.S. degree in Kinesiology, students should demonstrate the following outcomes:

1. Students will interpret, synthesize, and critically analyze research underlying the kinesiological dimensions of physical activity and health.

2. Students will develop principled reasoning skills necessary to apply and extend kinesiology knowledge to address problems that are relevant to physical activity and the health of diverse populations.

3. Students will integrate, interrogate, and communicate the connection between the scholarship of kinesiology and the goals of public health.

4. Students will engage in a diversity of physical activities both within and outside their formal curriculum.

5. Students will integrate their physical activity experiences with kinesiology sub-disciplinary knowledge.

Requirements for the Major

Kinesiology Major

This program offers students the opportunity to study the interdisciplinary body of knowledge related to human physical activity and sport, and to pursue specific specializations so that each individual can prepare for a particular career goal within the broad discipline. There is no intent to orient all students toward a particular specialized interest, orientation or career. However, many current students are pursuing careers in medically-related fields (i.e., physical therapy, physician, chiropractor), in the fitness industry (i.e., corporate fitness, personal training, health fitness director) as well as in the sport industry (sport management, sport marketing, events management, equipment sales, athletic director). The program provides a hierarchical approach to the study of human movement. First, a broad core of knowledge is recognized as being a necessary foundation for advanced and more specific courses. Secondly, at the 'Options' level, students select from approved upper level KNES courses, which they believe will provide the knowledge to pursue whatever future goal they set for themselves. To further strengthen specific areas of interest, students should select electives carefully. The program culminates with a senior seminar class in which students write a substantial paper and discuss the implications of research.

		Credits
	Required Courses	
KNES287	Sport and American Society	3
KNES293	History of Sport in America	3
KNES300	Biomechanics of Human Motion - *Prerequisite BSCI201 and MATH112, 113, 115 or placement in MATH140 with a grade of "C-" or better*	4
KNES350	Psychology of Sport	3
KNES360	Exercise Physiology - *Prerequisite BSCI201 and BSCI202 with a grade of "C-" or better*	4
KNES370	Motor Development	3
KNES385	Motor Control and Learning	3
KNES	*KNES Core requirements*	27
KNES400	Foundations of Public Health in Kinesiology - *Prerequisite: Minimum grade of "C-" in KNES287; and must have completed or be concurrently enrolled in KNES360*	3
	KNES Upper Level Option Courses See departmental Bulletin Board, Handbook, or web page **NOTE:** *all OPTION courses have one or more KNES Core courses as a prerequisite. Prerequisites must be completed with a grade of "C-" or better.*	12
	Supporting Courses	*18*
BSCI170&171	Principles of Molecular and Cellular Biology and Lab - *Prerequisite: Must have math eligibility of MATH120, MATH130, or MATH140.*	4
BSCI201	Human Anatomy and Physiology I - *Prerequisite BSCI170&171 with a grade of "C-" or better*	4
BSCI202	Human Anatomy and Physiology II - *Prerequisite BSCI201 with a grade of "C-" or better*	4
MATH/STAT	Statistics course	3
KNES497	Kinesiology Senior Seminar - *Prerequisite: A professional writing course with a grade of "C-" or better, all 7 KNES core and 2 KNES options; STAT100 or equivalent; and must have completed or be concurrently enrolled in KNES400 with a grade of "C-" or better.*	3
P.ACTV	*Physical Activity Courses*	*4*
KNES200 or 201	Kinesiological Principles of Physical Activity *See Handbook or webpage*	
ELECT	Electives (approximately)	*30*

* To complete the Kinesiology degree a minimum of 120 credits is required, including the general education program.

Advising

Kinesiology students do not have an assigned advisor, rather the advisors work as a team to serve the students. Some students choose to meet with the same advisor every time and some choose the advisor based on which meeting time works for their schedule. Either way works!

We strongly encourage students meet with an advisor regularly to discuss course requirements, benchmarks, academic plans, internships, schedules, and career planning.

Advising appointments can be made online at the website at (http://appointments-sphl.umd.edu/ramonline/. Advisors are not assigned to individual students, although certain advisors will handle issues related to policy exceptions, academic difficulties, change of major, study abroad, internships, athletes, and other special cases.

Advisors will assist with registration procedures, program updates, University resources, career guidance, and related issues. Students are strongly encouraged to follow their approved academic plan for timely progress throughout the degree program. Changes in the academic plan should be discussed with an academic advisor.

Walk-in hours are available each semester and advertised through the KNES listserv. Students are encouraged to use the online advising appointment process or email an advisor at advisingknes@umd.edu.

Undergraduate Research Experiences

Undergraduate research experiences are encouraged.

Research internships are available from 1 to 3 credits and are recommended at the junior or senior level, following the completion of most Kinesiology core courses.

Additional information is available on the UMD Undergraduate Research website (www.ugresearch.umd.edu/) or by contacting Director of the Undergraduate Programs (301 405-2480).

Internships

Internships are encouraged to assist students in connecting and applying academic and conceptual knowledge to the real world. Most students consider internships during their junior and senior years following the completion of related kinesiology core and options courses.

From a practical perspective, internships are invaluable in helping students focus on career options, gain experience, establish professional contacts and, perhaps most importantly, deciding whether a particular field is truly a good fit both professionally and personally.

Additional information is available on the department website (http://sph.umd.edu/department/knes/internships) or by contacting a member of our advising team.

Honors Program

The Department of Kinesiology Honors Program provides an opportunity for students to engage in challenging educational experiences related to the study of human movement, sport, and

exercise. Students with strong intellectual interests and the ability to pursue those interests at a high level are eligible for this program. It is the goal of the Honors Program to nurture these students and encourage them to pursue their interests in a range of intellectual topics. The Honors Program in the Department of Kinesiology is primarily designed for junior and senior level students to encourage them to engage in scholarly independent study and discussions.

Admission to the Honors Program is based on a multifaceted set of criteria and administered through the Departmental Honors Committee.

Students interested in entering the Honors Program should visit the following website: https://sph.umd.edu/department/knes/honors-program

Admission to the Honors Program is based on a multifaceted set of criteria and administered through the Departmental Honors Committee. Students interested in entering the Honors Program should submit a written request to the Chair of the Honors Program, described below in detail. Each application will be treated on an individual basis; therefore the Honors Committee may take work experience, leadership, motivation and maturity into consideration. Contact the Director for more information. The applicant must meet the following minimum requirements and is expected to participate in the Honors Program for a minimum of 3 semesters:

1. An overall GPA of 3.50 on a minimum of 45 credits. (Exception: Students who are close to achieving a 3.50 GPA may submit additional materials to the Honors Committee for consideration.)
2. Have a 3.50 GPA in courses taken within the Department of Kinesiology, to include at least 9 credits from the following courses: KNES287, 293, 300, 350, 360, 370, 385.

Student Societies and Professional Organizations

Kinesiology Student Organization (KSO)

The mission of this Kinesiology Student organization is to increase networking within the department (students, faculty, alumni), expose members to a variety of resources to help them succeed, and to enhance the overall sense of community through social events and community service. This is a student run organization that values opinions and ideas from everyone in the Kinesiology community.

E-mail ksoumd@gmail.com to subscribe to the group's list-serve.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

For information on departmental scholarships, please visit the department website: https://sph.umd.edu/department/knes/financial-support.

Landscape Architecture (LARC)

College of Agriculture and Natural Resources
2139 Plant Sciences Building, 301-405-4359
www.larch.umd.edu/
dcortez@umd.edu
Chair: A. Murphy (Professor & Chair)
Director: D. Myers (Director, MLA Program Chair, & Assoc Prof), D. Nola (BLA Program Chair & Instructor)
Associate Professors: V. Chanse, C. Ellis, B. Kweon, D. Myers, J.B. Sullivan
Assistant Professors: K. Cook
Instructors: D. Nola
Lecturers: A. Anderson

The Major

Landscape Architects lead, educate, and participate in the careful stewardship, wise planning, and artful design of our built and natural environments.The Landscape Architecture curriculum is a four-year professional program.

The Bachelor of Landscape Architecture (BLA) degree is accredited by the Landscape Architecture Accreditation Board (LAAB) (www.asla.org/accreditationlaab.aspx#About_LAAB). The BLA degree meets the academic requirements for licensure. LAAB standards require that first-professional degree curricula must include the core knowledge skills and applications of landscape architecture: landscape architectural history, philosophy, theory, values, ethics, practice, planning, design, implementation, and management. The program is a site-based design discipline that also deals with regional and larger-scale environmental/social issues. The curriculum, centered on a studio-based design curriculum, integrates ecological and social factors into the design and planning process. Students take a series of lecture and studio design courses, beginning with an introduction to landscape design principles in the first year and culminating in an advanced research and studio design project in the graduating year. Courses include Site Analysis and Ecological Principles, Site Design Studio, Urban Design Studio, and Professional Practice, among others. Digital design studios allow the integration of computer-aided design, GIS, and other analytical and communication tools with fundamental design and drawing skills.

The Department of Plant Science and Landscape Architecture offers two additional undergraduate curricula that students may choose: the Bachelor of Science (B.S.) in Plant Sciences or in Agricultural Sciences and Technology. Information on these majors may be found elsewhere in the catalog.

Courses offered by this department may be found under the following acronyms: PLSC and LARC.

Program Learning Outcomes

- Demonstrate an understanding of the design process used in landscape architectural practice.
- Demonstrate the ability to communicate through visual literacy using hand graphics and computer technology.
- Connect and build relationships with external groups in the appropriate fields of study.

Admission to the Major

Landscape Architecture is an open enrollment program.

Freshman Admission: The program's goal is to have the greater proportion of program majors admitted as freshmen. All entering freshmen will gain admission to the Landscape Architecture program directly from high school, as space permits. Early application is encouraged to ensure the best possible chance for admission.

Transfer Admission: Admission of transfer students is limited by space considerations. Students presenting an acceptable graphic portfolio, evaluated by the landscape architecture faculty, may be exempted from selected courses. Landscape architecture faculty will evaluate all other LARC-equivalent courses transferred from another institution.

The Studio Placement Benchmark Review: Admission into the studio sequence is contingent upon attaining a successful benchmark review of a portfolio to meet content and quality standards as outlined by the LARC program. Students must earn a minimum of 80 points out of 100. Benchmark portfolio reviews occur in the spring semester. The portfolio also requires a Letter of Application to the Landscape Architecture Program. Each student must write a one-page letter, addressed to the Landscape Architecture Program Faculty. The letter must clearly and concisely state his/her reasons for wanting to be in the Landscape Architecture Program.

Other Policies Which Determine a Student's Retention in the Landscape Architecture Program:

Appeals: Students who are unsuccessful in passing the Studio Placement Benchmark Review to the Landscape Architecture program and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Undergraduate Coordinator. The student will be notified in writing of the appeal decision.

BLA Degree Requirements. The courses and credit hours that define the curriculum leading to the degree of Bachelor of Landscape Architecture (BLA) are described in the next section. The curriculum includes required courses for the major as well as additional general education program requirements and electives. Following the successful Studio Placement Benchmark Review, students must have an overall average of a "C" (2.0) to be eligible for the BLA degree. Students must also have grades of "C-" or better in all required courses with the LARC designation.

Requirements for the Major

		Credits
ENGL393	Technical Writing	3
ENST200	Fundamentals of Soil Science	4
ENST444	Remote Sensing of Agriculture and Natural Resources, **OR**	
GEOG340	Geomorphology, **OR**	3
GEOG372	Remote Sensing	
LARC120	Digital Fundamentals	2
LARC140	Graphic Fundamentals Studio	4
LARC141	Design Fundamentals Studio	4
LARC160	Introduction to Landscape Architecture	3
LARC221	Digital Design Tools	3
LARC240	Graphic Communication and Design Studio	4
LARC263	History of Landscape Architecture	3
LARC265	Site Analysis and Ecological Principles	3
LARC320	Principles of Site Engineering	3
LARC321	Landscape Structures & Materials	3
LARC340	Site Planning and Design Studio	5
LARC341	Regional Design Studio	5
LARC389	Internship in Landscape Architecture	3
LARC420	Professional Practice	3
LARC440	Urban Design Studio	5
LARC450	Environmental Resources, **OR**	3
LARC451	Sustainable Communities	
LARC470	Landscape Architecture Seminar	3
LARC471	Capstone Studio: Community Design	5
MATH113	College Algebra and Trigonometry, **OR**	3
MATH115	Pre-calculus	
PLSC100	Introduction to Horticulture	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
Total Major Requirements		87

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year. See the

Undergraduate Coordinator of the Landscape Architecture Program in 2139 Plant Sciences Building (301-405-4359) for additional information.

Undergraduate Research Experiences

Landscape Architecture faculty members frequently have research opportunities for undergraduate students. Students are encouraged to contact faculty members for any opportunities. Students may also discuss these opportunities with their faculty advisors.

Internships

Internships are available at nearby federal, state and county agencies as well as in private landscape architecture firms. University of Maryland Landscape Architecture participates in the MDASLA Job Shadow Program. A list of participating firms can be found here.

Student Societies and Professional Organizations

The Student Chapter of the American Society of Landscape Architects (SASLA) provides students with opportunities to get involved with on-campus activities. The club is chartered by ASLA.

More information can be found online at: www.larch.umd.edu/people/student-asla-sasla

Scholarships and Financial Assistance

Several scholarships are awarded each year based on merit and need through the Department of Plant Sciences and Landscape Architecture. They include:

Undergraduate Awards

- The Homeland Garden Club of Baltimore Award
- Landscape Architecture Award of Excellence
- ASLA Honor and Merit Award Nominees
- Matt Weaver Scholarship

Contact the Associate Dean's office at 301-405-5308 for additional information. The Department also maintains a listing of scholarships. Contact Sharde Davenport in 2104 Plant Sciences, 301-405-6244.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Languages, Literatures, and Cultures, School of (SLLC)

College of Arts and Humanities
1105 JimÃ©nez Hall, 301-405-4025
www.sllc.umd.edu

Director: *Fatemeh Keshavarz*
Associate Director for Academic Affairs: *Mehl Penrose*
Associate Director for Academic Administration: *Lauretta Clough*
Assistant Director for Finance and Administration:

Academic Programs

The School of Languages, Literatures, and Cultures is the primary academic unit devoted to instruction and research in the world's languages, literatures, and cultures. It consists of the Departments of East Asian Languages and Cultures, French and Italian, Germanic Studies, Middle Eastern Studies, Russian, Spanish and Portuguese, as well as Second Language Acquisition programs. It offers undergraduate majors in Arabic Studies, Chinese, Film, French Language and Literature, Germanic Studies, Italian Studies, Japanese, Persian Studies, Romance Languages, Russian Language and Literature, and Spanish Language, Literatures, and Cultures. Minors can be earned in Arabic, Chinese Language, French Studies, Germanic Language and Literatures, Italian Language and Culture, Japanese, Korean Studies, Persian Studies, Portuguese Language, Literatures, and Cultures, Russian Studies, Spanish Language and Cultures, and Spanish Language, Business, and Cultures. Language and culture instruction through the advanced level is available in Hebrew as well. The School offers study abroad programs in many countries, both short and long-term. Its Language House, a residential immersion facility for approximately 100 students, is one of the most successful living-learning programs on campus, and offers immersion experiences in Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Persian, Russian, and Spanish.

East Asian Languages and Cultures (Chinese, Japanese, Korean)
2106 Jimenez Hall

www.chinese.umd.edu
www.japanese.umd.edu
www.korean.umd.edu

Professor: *Ramsey**
Associate Professors: *Mason*, Schonebaum+,Yotsukura*, Zhou+*
Assistant Professors: *Hashimoto+*

Senior Lecturers: *Akikawa*, Hu+, Inoue* , Kong+, Lee-Heitz+, Y. Ramsey**, Yamakita**

Lecturers: *Delgreco*, Wang+*

+Chin *Japn **Kora

French and Italian
3106 Jimenez Hall
301-405-4024
www.french.umd.edu
www.italian.umd.edu

Professors: *Brami, Campangne, Frisch, Mossman, Orlando*
Associate Professors: *Benharrech, Eades, Falvo*, Scullen*

Assistant Professors: *Baillargeon, Resmini**

Distinguished Senior Lecturer: *Amodeo**

Senior Lecturer: *Deigan**

Lecturers: *Cefalo*
Emeriti: *Hage, Russell*, Tarica, Verdaguer*

* ITAL

Germanic Studies
3215 Jimenez Hall

www.german.umd.edu

Professors: *Beicken+, Frederiksen+, Moyer, Oster*
Associate Professors: *Baer, Koser*
Lecturer: Ianozi

Emeriti: *Best, Jones, Pfister, Strauch, Walker*

+Distinguished Scholar/Teacher

Middle Eastern Studies
3215 Jimenez Hall
301-405-1891
www.arabic.umd.edu
www.hebrew.umd.edu
www.persian.umd.edu

Professors: *Karimi-Hakkak*, Keshavarz-Karamustafa**
Associate Professor: *Abasi*, Anishchenkova+, Zakim++*
Assistant Professors: *Elsisi+, Glanville+*

Associate Research Professor: *Feuer++*

Assistant Clinical Professor: *Akbari-Saneh*, Bazargan*, Meftahi**

Lecturers: *Alkebsi+, El Amine+, El-Hefnawy+, Gazit-Rosenthal++, Moinfar*,*

*PERS
+ARAB
++HEBR

Russian
3215 Jimenez Hall
www.russian.umd.edu

Associate Professors: *Lekic, Martin, Papazian*

Lecturers: *Fradkin, Lozinsky*

Maya Brin Distinguished Lecturer: *Gerus-Vernola*

Spanish and Portuguese
2215 Jimenez Hall
301-405-6441
www.portuguese.umd.edu
www.spanish.umd.edu

Professors: *Benito-Vessels, Demaria, Igel*, Quintero-Herencia, Sosnowski*

Associate Professors: *Lacorte, Long, Merediz, Naharro-Calderón, Penrose, Rodriguez, Sánchez M de Pinillos*

Assistant Professor: *Lima**

Senior Lecturers: *Acedo Garcia, Canabal-Torres*

Lecturers: *Faccio, Onate*

Emeriti: *Aguilar-Mora+, Cypess, Harrison, Lavine, Nemes*

*PORT
+ Distinguished Scholar Teacher

In all SLLC programs, language acquisition courses must be taken sequentially. Once credit has been received in a higher-level language acquisition course, a lower-level course may not be taken for credit.

Language Majors

For information on majors in the School of Languages, Literatures, and Cultures (SLLC), please visit: www.sllc.umd.edu. Alternatively, please see chapter 7 of the undergraduate catalog.

Language Minors

For information on Minors offered within SLLC, please see: www.sllc.umd.edu.

Other Language Programs

Hebrew

The Program in Modern Hebrew provides an opportunity to develop knowledge and skills in Hebrew language, literature, and culture.

Students wishing to focus on Hebrew language as a primary subject may do so through a concentration in Hebrew within the Jewish Studies major (see the Meyerhoff Center for Jewish Studies at http://www.jewishstudies.umd.edu/) or by devising their own major through the Individual Studies Program (http://www.ivsp.umd.edu).

Advising

SLLC programs provide a dedicated advisor for all students interested in studying within their program. See the program entries in this catalogue for names and contact information, or sllc.umd.edu.

Undergraduate Research Experiences

SLLC undergraduates are invited to participate in the annual SLLC research forum and award ceremony, an April celebration of inquiry and achievement in the areas of languages, literatures, and cultures.

Honors Programs

Honors options are available for students pursuing a BA in French Language and Literature, Germanic Studies, or Spanish Language, Culture, and Literature.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Letters and Sciences

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program. Letters and Sciences advisors help students to select and schedule courses, plan academic programs, and learn about campus-wide resources. Letters and Sciences collaborates closely with college advising offices, academic departments, and programs across campus and provides a coordinated advising network.

For information, see Office of Undergraduate Studies in Chapter 6.

Linguistics (LING)

College of Arts and Humanities
1401 Marie Mount Hall, 301-405-7002
www.ling.umd.edu
Chair: W. Idsardi (Professor and Chair)
Professors: N. Hornstein, H. Lasnik (Dist Univ Prof), J. Lidz, C. Phillips, P. Pietroski, M. Polinsky, P. Resnik, J. Uriagereka, A. Weinberg
Associate Professors: V. Hacquard, A. Williams
Assistant Professors: N. Feldman, E. Lau, O. Preminger
Senior Lecturer: M. Antonisse, T. Bleam (Undergraduate Program Director)
Assistant Research Scientist: A. Zukowski

The Major

The Linguistics Department offers courses on many aspects of the scientific study of language and an interdisciplinary major leading to a Bachelor of Arts.

Research in linguistics aims to discover how a person's linguistic capacity is represented in the mind, how that knowledge is acquired, what aspects are innate, and how language is processed in the mind and brain. Students learn how to address these questions through various sources of evidence, such as descriptions of individual languages, patterns of grammatical variation and invariance, the development of language in children, the mental processes of language in use, computational models of acquisition and processing, and patterns of physiological activity in the brain.

The major in Linguistics is designed for students who are primarily interested in human language per se, or in describing particular languages in a systematic and psychologically plausible way, or in using language as a tool to reveal some aspect of human mental capacities. Such a major provides useful preparation for further research in linguistics and cognitive science, as well as for professional programs in foreign languages, language teaching, communication, psychology, speech pathology, and artificial intelligence. Because of the emphasis placed on analytic thinking, scientific reasoning, and evidence-based argumentation, the linguistics major also prepares students for a broad range of careers outside of the language sciences.

Program Learning Outcomes

The Department of Linguistics B.A. program seeks to expose majors to fundamental questions about the nature of the human mind, using Language as a vehicle for examining this issue. The program aims to cultivate strong empirical research skills, data analysis, application of scientific methodology, and the ability to communicate clear, logical arguments. By the time students complete the requirements for the major, they can expect to have mastered the following measurable learning outcomes:

1. Students demonstrate the ability to apply scientific methodology to data analysis and to develop effective argumentation skills.
2. Students demonstrate the ability to critically evaluate a proposal in the field.
3. Students incorporate scientific writing style in essays, review papers, and research papers.
4. Students demonstrate the ability to provide and defend an analysis of the phonological system in any language, when provided with sufficient data.
5. Students demonstrate the ability to provide and defend a structural analysis for a given sentence in any language, when provided with sufficient data.

Academic Programs and Departmental Facilities

Students can become involved in a wide range of research activities including computer programming and experimental projects in language acquisition (ling.umd.edu/languageacquisition/), psycholinguistics (ling.umd.edu/psycholinguistics/) and neurolinguistics (ling.umd.edu/neurolinguistics/). Selected undergraduate students work alongside faculty and graduate students—learning to design, execute, and analyze experiments—within our Cognitive Neuroscience of Language Labs (including the Language Acquisition Lab (ling.umd.edu/research/acquisition_lab/), the EEG/ERP Lab (ling.umd.edu/research/eeg/), the Maryland-KIT MEG Lab (ling.umd.edu/research/meg/), and the Maryland Neuroimaging Center (www.mnc.umd.edu/home). Students can also take advantage of the department's affiliation with the Language Science Center (languagescience.umd.edu/) which offers additional resources and programs such as PULSAR (languagescience.umd.edu/education/pulsar-undergraduate-program) (undergraduate certificate program offering interdisciplinary training in language science) and the Guatemala Field Station (languagescience.umd.edu/beyond-umd/guatemala-field-station).

For more information about ongoing research, lab facilities, and opportunities for undergraduate involvement, go to the following web pages:

http://ling.umd.edu/undergraduate/

http://ling.umd.edu/research/

Requirements for the Major

A grade of at least "C-" is required in all major courses. An overall GPA of 2.0 in the major is required for graduation. The Linguistics major consists of 39 credits: 24 credits of Linguistics Core classes plus 15 credits from one of the Tracks, as specified below.

Core required of all majors: 24 credits

- LING240 Language and the Mind - 3 credits
- LING311 Syntax I - 3 credits
- LING321 Phonology I - 3 credits
- Two from: 6 credits

  LING312 Syntax II - 3 credits
  LING322 Phonology II - 3 credits
  LING320 Phonetics - 3 credits
  LING410 Grammar and Meaning - 3 credits
  LING440 Grammars and Cognition - 3 credits
  LING444 Child Language Acquisition - 3 credits

- Three 3xx-4xx level LING electives 9 credits

Choice of one Track:
Grammars and Cognition Track 15 credits

- PSYC100 Introduction to Psychology - 3 credits
- PHIL170 Introduction to Logic - 3 credits
- LING350 (or PHIL360) Philosophy of Language - 3 credits
- Two approved electives in LING, PSYC, HESP, PHIL, or CMSC 6 credits

Language Track 15 credits

- 15 credits of a single chosen language
- At least 3 of the 15 credits must be at or above the 2xx level.

There are no requirements for support courses for the Linguistics major.

Students pursuing the major should review the academic benchmarks established for this program. See: www.4yearplans.umd.edu. Students will be periodically reviewed to insure they

are meeting benchmarks and progressing to the degree. Students who fall behind program benchmarks are subject to special advising requirements and other interventions.

Other Requirements for the Major

- LING240 must be taken before any other courses in the major; this course serves as a gateway to the major. A grade of "C-" or better is required in this course before taking further courses in Linguistics. However, a grade of "B" or higher in LING240 is a relatively good predictor of continued success in the rest of the major (as courses become more difficult). LING 240 is offered every semester.

- A grade of "C-" or better is required in prerequisite courses.

- After LING240, students should take LING311 (Syntax I) and LING321 (Phonology I), as they are prerequisites for other required courses. These courses can be taken together in the same semester. These courses are offered every semester (fall and spring).

- No more than 1 independent study or lab course (3 credits) can be used towards the three 3xx-4xx level LING electives (part of the LING core).

- 3xx-4xx courses beyond LING311 and 321 are generally offered just once per year. Check Testudo to see when these are offered in a given year (either fall or spring).

- Optional courses for the major are not necessarily offered on a regular basis. Students should check with the undergraduate advisor to find out which courses will be offered and when.

- For the Language Track, the "15 credits of a single chosen language" must be courses that focus on language (and not, for example, history, literature or culture taught in the language).

- The "structure or history of the language" course is no longer required but such a course can be taken to count towards the 15 credits of the language.

- Note that courses cannot be double-counted for different requirements in the major. All of the "boxes" must be filled in by different courses such that you reach the required number of credits with all of the categories fulfilled.

- Electives for the Cognition Track must be approved by the linguistics advisor.

Requirements for the Minor

15 credit hours: LING200, 240, 321, 311, and one 3xx-4xx level linguistics elective.
All courses presented for the minor must be passed with a grade of "C-" or better. An overall GPA of 2.0 in the minor is required for graduation.

For more details about the minor, please see chapter 8 of the Undergraduate Catalog.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Advising

Linguistics majors have a dual system of advising. The department advisor is a faculty member in the Linguistics department and advises students about major requirements and courses. For more general advising (about general education requirements, ARHU requirements, etc), students will go to their college (ARHU) advisor. Students may choose to make appointments every semester with either or both advisors, but will have mandatory advising at both the departmental and college level at three different points:

- first semester matriculated in the major
- between 45-55 credits
- between 86-100 credits

Failure to meet with both advisors for mandatory advising will result in being blocked from registering for classes for the following semester.

For more information about the major, advising, and how to contact a Linguistics advisor, visit the Linguistics Department web page at:

http://ling.umd.edu/undergraduate/

To review the academic plan for this major, go to
http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

There are opportunities in the department for undergraduate students to get involved in doing research. Students interested in research in linguistics should submit a resume and/or project proposal to the undergraduate advisor or to an appropriate faculty member. Attempts will be made to match students with appropriate faculty advisors. The possibility of doing research is not guaranteed for every student, but will depend on the student's skills and the availability and willingness of a faculty member to direct the project.

In addition to opportunities during the regular semester to receive course credit for research assistantships, students can also apply for funding to work as a research assistant during the summer through the Linguistics Department Baggett Scholarship program. (More information about the Baggett summer program can be found on the website at: http://www.ling.umd.edu/baggett/).

For research opportunities in specific labs/facilities see the section on Academic Programs and Departmental Facilities (above).

Fieldwork Opportunities

Students seeking an in-depth research experience doing fieldwork have an opportunity to participate in the Summer Field School (languagescience.umd.edu/summer-field-school) at UMD's Guatemala Field Station.

Honors Program

Academically talented Linguistics majors with junior standing may petition to become honors candidates in Linguistics. Honors students work on a research project under a faculty advisor, write an honors thesis, and present the work in a public forum.

Student Societies and Professional Organizations

The UMD undergraduate linguistics club is called Terplings. There is an active facebook page (www.facebook.com/terplings) for interested students. More information can also be obtained by emailing the linguistics advisor.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Also, students can apply for a Linguistics Department Baggett Scholarship to work (in a paid position) as a research assistant during the summer. See below.

Awards and Recognition

The Department of Linguistics offers several Baggett Summer Scholarships every year. These are paid, faculty-mentored summer research positions open to UMD undergraduate students with training in linguistics or cognitive science.

More information can be found on the website at: http://www.ling.umd.edu/baggett/.

LOGISTICS, BUSINESS, AND PUBLIC POLICY (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: M. Dresner (Associate Chair), C. Grimm
Professors: T. Corsi, M. Dresner, C. Grimm, P. Morici, R. Windle
Associate Professors: T. Anenson, W. Chung, C. Dezso, P. Evers, G. Mark, R. Sampson, B.

Zelner
Assistant Professors: R. Cooper (Asst Prof)
Lecturers: J. Boroumand, G. Cohen, H. Coronado (Lecturer), J. Gershberg (Lecturer), T. Heggans (Lecturer), W. McAdam, W. McClenahan, C. Olson, H. Turner, M. Wagner (Lecturer)
Adjunct Professors: R. Daniels, L. Gardner, A. Gillyard, R. Hutchins, J. Miller, G. Milsom, K. Nagata, J. Reyna, T. Wilkerson
Research Professor: S. Boyson (Res Prof, Aff Res Prof), K. Prasad (Res Prof, Lecturer)
Professors Emeriti: B. Leete

The Major

Two curriculum concentrations are offered through the Logistics, Business, and Public Policy department:

Supply Chain Management
International Business

Supply Chain Management: The predominance of business activity taking place on a global scale has increased the opportunities for integrated supply chain management to have a profound impact on value chain performance. The supply chain encompasses all organizations involved in the production of a good or service and its ultimate delivery to the end consumer. Supply chain managers oversee many varied but inter-related processes including the flows of materials and information. Within supply chain management, logistics deals primarily with the materials flow component of the supply chain, and logistics managers are responsible for fulfilling customer orders while simultaneously controlling distribution costs from a total cost perspective. Students pursuing a supply chain major will develop theoretical, analytical, and software skills designed to prepare them for careers in a variety of fields.

International Business responds to the global interest in international economic systems and their multicultural characteristics. This degree combines the college-required courses with International Business courses and provides students the opportunity to apply a specified upper level foreign language course toward this specialization's requirements. It is strongly recommended that this program be declared in combination with another major in or outside of business in order to assure that graduates will have specialized career focus.

Admission to the Major

See Robert H. Smith School of Business entry in Chapter 6 for admission requirements.

Requirements for the Major

Supply Chain Management

Course requirements for the junior-senior curriculum concentration in Supply Chain Management are as follows:

		Credits
BMGT370	Introduction to Transportation	3
BMGT372	Introduction to Logistics and Supply Chain Management	3
BMGT477	International Supply Chain Management	3
	Two of the following courses:	6
BMGT373	Supply Chain Management Internship (NOTE: a maximum of 3 credits of BMGT373 can fulfill Supply Chain Management major requirements.)	
BMGT470	Carrier Management	
BMGT471	Seminar in Supply Chain Management: An Executive Perspective	
BMGT472	Purchasing and Inbound Logistics	
BMGT475	Supply Chain Strategy and Network Design	
BMGT476	Technology Applications in Supply Chain Management	
BMGT478	Special Topics in Supply Chain Management (NOTE: a maximum of 6 credits of BMGT478 can fulfill Supply Chain Management major requirements.)	
	One of the following courses:	3
BMGT302	Developing Business Applications	
BMGT332	Operations Research for Management Decisions	
BMGT385	Operations Management	
BMGT455	Sales Management	
BMGT461	Entrepreneurship	
BMGT484	Electronic Marketing	
BMGT490	Quest Consulting and Innovation Practicum – option only for students in the QUEST program	
	Or one of the following not selected above: BMGT373, 470, 471, 472, 475, 476 or 478 (NOTE: a maximum of 3 credits of BMGT373 and a maximum of 6 credits of BMGT478 (if content differs) can fulfill Supply Chain Management major requirements.)	
	Total Major Requirements	18
	Upper Level Economics Requirement *One of the following courses:*	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	

Note: *Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306 respectively.*

International Business

Note: *Curriculum is currently under review. Please consult http://www.rhsmith.umd.edu/undergrad for the most up-to-date curriculum.*

Course requirements for the junior-senior curriculum concentration in International Business are:

		Credits
BMGT392	Introduction to International Business	3
BMGT454	International Marketing	3
BMGT477	International Supply Chain Management	3
BMGT446	International Finance	3
BMGT463	Cross-cultural Challenges in Business	3
BMGT466	Global Business Strategy	3
	Total BMGT	18
ECON340	International Economics	3
	One of the following:	3
	ECON305, 306, 315, 316, 330, 380 or agreed upon foreign language credits which includes CHIN412, FREN406, GERM412, ITAL406, JAPN404, RUSS407, SPAN415	
	Total ECON/LANGUAGE	6

In addition to the major requirements listed above, please see the Roberts H. Smith School of Business under The Colleges and Schools or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217, or visit http://www.orientation.umd.edu/.

Management (M&O)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: K. Bartol, P. Prochno (Assoc Dept Chair)
Professors: K. Bartol, C. Beckman, G. Chen, A. Gupta, H. Liao, D. Shapiro, M. Taylor, R.

Tronetti
Associate Professors: S. Braguinsky (Assoc Prof), W. Ding, B. Goldfarb, D. Kirsch, M. Seo, C. Stevens, S. Tangirala, V. Venkataramani, D. Waguespack
Assistant Professors: R. Rozin (Asst Prof), E. Starr (Asst Prof)
Lecturers: J. Aberman, H. Aelion (Lecturer), A. Antico-Majkowski (Lecturer), P. Cleveland, N. Coomber, P. Dastidar, M. Geppi, C. Graser, D. Kressler, J. Kudisch, G. Langa, N. Moye, R. Muller, P. Prochno, J. Russell, J. Sanders, O. Schlake, A. Sherman, P. Silverman, J. Spina, L. Spina, H. Weiser (Lecturer), M. Wellman, C. Wesley (Lecturer)
Professors Emeriti: J.R. Baum, S. Carroll, M. Gannon, R. Lamone, E. Locke, H. Sims, K. Smith

The Major

The Robert H. Smith School of Business has long been recognized as a leading undergraduate program in management and entrepreneurship. Both these programs regularly appear highly ranked in a variety of publications. The management major focuses on leadership and entrepreneurship to engage students in critical thinking and problem solving applicable in many careers.

The core of the management major offers two courses in leadership and negotiations. These core courses emphasize skills students need in a changing employment environment. As more jobs become automated, managing people and solving tough problems will become increasingly important to attaining meaningful employment. The core classes in the management major provide education in problem solving, leadership, and effective teamwork. The demanding and fast-paced careers of the future will require students to demonstrate a strong ability to communicate and solve problems in a team under extreme pressure. The core major classes prepare students for careers in areas such as strategy, information technology, operations, healthcare administration, and organizational transformation.

There are a number of potential career paths stemming from the management major, such as consulting analyst, financial advisor, human resource management, nonprofit management, rotational leadership programs, and entrepreneur, including social entrepreneurship. These are grouped into two major areas of focus, leadership & innovation and entrepreneurship. Both areas focus on critical thinking and problem solving, and allow students to create a major tailored to their future goals.

The Management & Organization department has relationships with a number of centers of excellence, including the Dignman Center for Entrepreneurship and the Center for Leadership, Innovation and Change which provide relationships with professors, researchers, and organizations for students interested in enhancing their course of study with co-curriculuar opportunities.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Course requirements for the junior-senior curriculum concentration of the Management major are as follows:

BMGT363 Leadership and Teamwork in Organizations 3 credits
BMGT362 – Negotiations 3 credits

Four of the following courses (12 credits)

BMGT360 Strategic Management of Human Capital 3 credits

BMGT366 Growth Strategies for Emerging Companies 3 credits

BMGT461 Entrepreneurship 3 credits

BMGT463 Cross-Cultural Challenges in Business 3 credits

BMGT466 Global Business Strategy 3 credits

BMGT468 Special Topics in Management and Organization 3 credits

BMGT469 Management and Organization Short-term Study Aboard 3 credits

Note: A maximum combined total of 6 credits of BMGT468 and BMGT469 coursework can satisfy Management major requirements.

Total Management Major Requirements 18 credits

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@deans.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

MARKETING (BMGT)

The Robert H. Smith School of Business
1570 Van Munching Hall, 301-405-2286
www.rhsmith.umd.edu/undergrad
undergradinfo@rhsmith.umd.edu
Chair: R. Ferraro (Associate Chair), D. Godes
Professors: D. Godes, P. Kannan, A. Kirmani, W. Moe, R. Ratner, R. Rust, J. Srivastava, M.

Wedel, J. Zhang
Associate Professors: R. Ferraro, Y. Joshi, M. Trusov, J. Wagner
Assistant Professors: T. Chen, L. Ma, Y. Wang (Asst Prof), L. Zhang (Asst Prof), B. Zhou (Asst Prof)
Lecturers: M. Bonavia (Lecturer), H. Boyd, K. Boyle (Lecturer), J. Brown (Lecturer), M. Fardanesh (Lecturer), R. Fiddler, J. Frels (Clin Prof), M. Harms, R. Lefkoff, J. Naithani (Lecturer), R. Newman (Lecturer), M. Rhee (Lecturer), D. Whitney
Professors Emeriti: T. Greer (Professor Emeritus), R. Krapfel (Assoc Prof Emeritus), W. Nickels (Assoc Prof Emeritus)

The Major

The goal of marketing is to satisfy all the stakeholders of the firm - employees, dealers, stockholders, and customers - by seeing that quality goods and services are developed and provided at fair prices and in a way that benefits the community and society. World-class competition has forced businesses to develop marketing programs that are as good as the best. This means getting closer to the customer, joining other organizations to create value for the consumer, and designing integrated distribution and communication programs that provide a seamless flow from producers to consumers. Pricing, communication/promotion, product/service, and distribution activities inherent in the development of marketing programs are applicable to non-profit organizations, business-to-business organizations, and firms that sell to ultimate consumers.

Many types of careers are available to the marketing major. These include, but are not limited to: sales, advertising, retailing, product/service management, and marketing research. Because of the many different employment opportunities in marketing, many marketing electives are offered along with three core courses required of all marketing majors - consumer analysis, marketing research, and marketing strategy.

Admission to the Major

See Robert H. Smith School of Business entry in chapter 6 for admission requirements.

Requirements for the Major

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

		Credits
BMGT451	Consumer Analysis	3
BMGT452	Marketing Research Methods	3
BMGT457	Marketing Policies and Strategies	3
	Three of the following courses:	9
BMGT352	Customer-Centric Innovation	
BMGT353	Retail Management	
BMGT357	Retailing and Marketing Internship *(3 credits only)*	

BMGT372	Introduction to Logistics and Supply Chain Management	
BMGT450	Integrated Marketing Communications	
BMGT454	Global Marketing	
BMGT455	Sales Management	
BMGT458	Special Topics in Marketing *(maximum of 6 credits if content differs)*	
BMGT484	Electronic Marketing	
	Total BMGT	18
	Upper Level Economic Requirements *One of the following:*	3
ECON305	Intermediate Macroeconomic Theory and Policy	
ECON306	Intermediate Microeconomic Theory	
ECON330	Money and Banking	
ECON340	International Economics	
	Total ECON	3

Note: Students who have completed ECON325 and ECON326 can substitute these courses for ECON305 and ECON306 respectively

In addition to the major requirements listed above, please consult "Colleges and Schools" on this site or www.rhsmith.umd.edu for a listing of additional Smith School degree requirements that apply to all Smith School majors.

Advising

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286, undergradinfo@rhsmith.umd.edu. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures. Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

Materials Science and Engineering (ENMA, ENNU)

A. James Clark School of Engineering
2135 Chemical and Nuclear Engineering Building, 301-405-5240
www.mse.umd.edu
mseundergrad@umd.edu
Chair: R. Phaneuf
Professors: M. Al-Sheikhly, S. Ankem, R. Briber, A. Christou, G. Oehrlein, G. Rubloff, L. Salamanca-Riba, I. Takeuchi, E. Wachsman, M. Wuttig
Associate Professors: J. Cumings, I. Lloyd, L. Martinez-Miranda, O. Rabin
Assistant Professors: L. Hu, M. Leite (Asst Prof), Y. Mo (Asst Prof)
Affiliate Professors: B. Eichhorn, A. Flatau, R. Ghodssi, P. Kofinas, B. Shapiro, L. Sita, E.

Smela, M. Zachariah
Affiliate Associate Professors: J. Aranda-Espinoza, S. Lee, M. Ouyang, E. Rodriguez, C. Wang
Affiliate Assistant Professors: Z. Nie
Adjunct Professors: A. Barkatt, R. Cook, T. Foecke, B. Hammouda, M. Kukla, R. Livingston, J. Rush
Adjunct Associate Professors: J. Slutsker, A. Talin
Adjunct Assistant Professors: J. Cui, B. Pate
Professors Emeriti: J. Silverman

The Major

The development, production and use of novel materials has become a major issue in all fields of engineering. Materials which are strong and light at the same time are needed for space structures; faster electro-optical switching materials will result in improved mass communications; and stronger high temperature plastics would improve the efficiency of transportation systems. Students will have the opportunity to work with faculty and industry on complex problems through projects, internships, and research and co-op experiences. A wide variety of careers are open to graduates of this program ranging from production and quality control in the traditional materials industries to the molecular construction of electronic materials in ultra-clean environments, and to the applications of materials in electronic packages. The application of materials to solve environmental, biomedical, energy, and reliability problems are also career options.

Students majoring in Materials Science and Engineering will receive a Bachelor of Science upon successful completion of the program. Courses offered by this department may be found under the acronym ENMA.

The Bachelor of Science in Materials Science and Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, 415 North Charles Street, Baltimore, MD 21201, telephone: (410) 347-7700.

Program Objectives

The mission of the Materials Science and Engineering Department at the University of Maryland is to provide a quality engineering education, research at the forefront of the field, and leadership to the Materials and Engineering communities. Our educational programs will have the following objectives:

- Produce high quality alumni who will be successful in their chosen careers in industry, government or academia, in the State of Maryland, the nation and the world.

- Produce alumni who demonstrate the ability define and solve engineering and science problems in the field of Materials Science and Engineering throughout their careers.

- Produce alumni who demonstrate the ability to relate basic physics, math and engineering principles to the field of Materials Science and Engineering so they can function professionally as materials engineers and scientists.

- Produce alumni who design and engineer materials and materials systems for future generations of products and demonstrate a continuous upgrading their knowledge to address and impact the rapid pace of technological advances.

The Department will support our students with an educational program that has sufficient breadth in both fundamental and specialized engineering topics to insure our graduates meet the current and future needs of society. In the area of research, the Department conducts a range of scientific research programs and establishes partnerships with government and industry, both in Maryland and elsewhere, to accomplish this goal.

Program Learning Outcomes

The overall educational outcomes of the Materials Science and Engineering Program are to provide undergraduate engineering students:

- Ability to apply knowledge of math, engineering and science
- Ability to design and conduct experiments, analyze and interpret data
- Ability to design a system, component or process to meet desired needs
- Ability to function on multi-disciplinary teams
- Ability to identify, formulate and solve engineering problems
- Understanding of professional and ethical responsibility
- Ability to communicate effectively
- Broad education to understand the impact of engineering solutions in a global and societal context
- Recognition of need and ability to engage in life-long learning
- Knowledge of contemporary issues
- Ability to use techniques, skills, and modern engineering tools necessary for practice

Academic Programs and Departmental Facilities

The Department's research facilities are available to undergraduates interested in pursuing research opportunities. Interested undergraduates are encouraged to work with a faculty member and his or her research team. Specific information on the facilities is available on the website: www.mse.umd.edu/research/laboratories.html

A partial list of facilities available to the students in the Department include:

- The modern Engineering Materials Instructional Lab www.memil.umd.edu/
- The Keck Laboratory for Combinatorial Nanosynthesis and Multiscale Characterization www.nanocenter.umd.edu/labs/Keck/index.php
- Advanced Imaging and MicroscopyLaboratory (AIMLab) https://www.nanocenter.umd.edu/aimlab/

- Laboratory for Advanced Materials Processing (LAMP) www.mse.umd.edu/LAMP/
- Laboratory for Plasma Processing of Materials
- Functional Macromolecular Laboratory fml.umd.edu/
- The FabLab Micro and Nano Fabrication Laboratory run by the University of Maryland NanoCenter https://nanocenter.umd.edu/fablab

Admission to the Major

All Materials Science and Engineering students must meet admission, progress, and retention standards of the A. James Clark School of Engineering and the University of Maryland. See www.eng.umd.edu.

Requirements for the Major

Requirements for the Materials Science and Engineering major include thorough preparation in mathematics, chemistry, physics, and engineering science as well as the required university general education requirements. All students will be required to select an area of specialization, an upper-class science elective, and two technical electives. A minimum of 122 credits is required for a bachelor's degree. A sample program follows:

FIRST YEAR, Semester 1	**Credits**	**FIRST YEAR, Semester 2**	**Credits**
CHEM135, Chemistry for Engineers	3	ENES102, Mechanics I	3
ENES100, Engineering Design	3	MATH141, Calculus II	4
MATH140, Calculus I	4	PHYS161, General Physics I	3
ENGL101, Academic Writing	3	GenED	3
CHEM136, Chemistry Lab	1	GenED	3
ENMA180: Intro to MSE	1		
TOTAL CREDITS	**15**	**TOTAL CREDITS**	**16**
SECOND YEAR, Semester 1		**SECOND YEAR, Semester 2**	
PHYS260/261, General Physics II	4	PHYS270/271, General Physics III	4
MATH241, Calculus III	4	MATH246, Differential Equations	3

ENMA300, Intro to Materials Engineering	3	CHEM231/232 or 481[1], Organic Chemistry I or Physical Chemistry I	4 or 3
Oral Communication	3	ENMA301, Materials for Emerging Technology	3
MATH206, Introduction to Matlab	1	GenED	3
TOTAL CREDITS	**15**	**TOTAL CREDITS**	**16 or 17**
THIRD YEAR+, Semester 1		**THIRD YEAR, Semester 2**	
ENMA312 Experimental Methods in Material Science OR Upper Level Science Elective	3	ENMA312, Experimental Methods in Material Science OR Upper Level Science Elective	3
ENMA362, Mechanical Properties	3	ENMA465, Microprocessing of Materials	3
ENMA460, Physics of Materials	3	ENMA461, Thermodynamics of Materials	3
Scholarship in Practice*	3	Specialization Elective	3
Specialization Elective	3	ENMA470, Materials Selection for Engineering Design	3
TOTAL CREDITS	**15**	**TOTAL CREDITS**	**15**
FOURTH YEAR, Semester 1		**FOURTH YEAR, Semester 2**	
ENMA441, Characterization of Materials	3	Technical Elective ($\geq$ 300 level)	3
ENMA471, Kinetics, Diffusion, Phase Transformations	3	Specialization Elective	3
Specialization Elective	3	Specialization Elective	3
ENGL 393, Technical Writing	3	GenED*	3
Technical Elective ($\geq$ 300 level)	3	ENMA490, Materials Design	3
TOTAL CREDITS	**15**	**TOTAL CREDITS**	**15**

TOTAL 4 year credits: 122 or 123

*All students must complete two Distributive Studies courses that are approved for I-series courses. The Understanding Plural Societies (UP) and Cultural Competence (CC) courses may also fulfill Distributive Studies categories.

[1]CHEM 231/232 is required for students focusing on polymers.

Other Requirements for the Major

Students majoring in Materials Science and Engineering must follow the academic policies developed by the A. James Clark School of Engineering. Students must achieve a "C-" or better on all coursework in their major (including required non-engineering courses such as chemistry and physics). Students must achieve a minimum cumulative GPA of 2.0 and completion of all degree requirements to graduate. Students are encouraged to visit the Department webpage for a curriculum guideline. A multi-year academic plan will be developed in conjunction with their advisor. All Materials Science and Engineering students must be mentored by three different faculty members, preferably during their freshman and sophomore years (once per semester) to assist them in choosing their specialization area and to plan for post graduation.

Requirements for the Minor

The Department coordinates an interdisciplinary minor in Nanoscale Science and Technology through The Maryland NanoCenter.

Explosive growth in the field of nanometer scale science and technology (NS&T) has led in the past few years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology at the University of Maryland is intended to prepare participating University of Maryland students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at Maryland, in departments distributed between two schools: Engineering, and Computer, Mathematics and Natural Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. The minor is open to any student majoring in Engineering, Physics or Chemistry.

Completion of the program instills in students the broad perspective needed for nano, including understanding and experience in fabrication/synthesis of nanomaterials and structures, their characterization/measurement, the fundamental science underlying them, and their applications.

For more information see https://www.nanocenter.umd.edu/education/nano-minor/ or contact Director, Nano Minor Professor, Ray Phaneuf (https://www.nanocenter.umd.edu/faculty/?u=29), MSE, or Education Coordinator, Nano Minor, Dr. Kathleen Hart, MSE.

Advising

Students choosing Materials Science and Engineering as their major should contact Dr. Kathleen Hart, Associate Director of Student Services, Room 1111, Chemical and Nuclear Engineering Building, at 301-405-5989 or hart@umd.edu. Dr. Hart can direct students to their advisor: Professors Lloyd, Cumings, Martinez-Miranda, Rabin, Salamanca-Riba, Takeuchi, or Mo. Any questions about the program should be directed to Dr. Isabel Lloyd, Undergraduate Studies Director.

Undergraduate Research Experiences

The Department strongly supports undergraduate students who wish to pursue research opportunities. The student should discuss their interest with their advisor or with Dr. Kathleen Hart (Associate Director, Student Services) or Professor Isabel Lloyd (Undergraduate Program Director). See www.mse.umd.edu/research

Internships

The Department strongly encourages students to pursue internships as part of their undergraduate experience. They should discuss an internship with their advisor as they develop their academic plan. The Department will forward information about internships to our undergraduate students. Students may also receive information on internships from the A. James Clark Co-op and Career Services Center. See www.coop.eng.umd.edu.

Co-op Programs

The Materials Science and Engineering program works with the A. James Clark School of Engineering Cooperative Engineering education Program. For more information, students should speak with their advisor regarding their interest in a co-op experience and consult the College web page at www.coop.eng.umd.edu/.

Student Societies and Professional Organizations

Undergraduate Societies The Materials Engineering Society, or MatES, is a student society primarily for Materials Science and Engineering majors at the University of Maryland College Park. MatES is the University of Maryland's Material Advantage Student Chapter. It includes recognition by several professional societies including ASM International, The Minerals, Metals, and Materials Society (TMS), and the American Ceramic Society (ACerS). More information is available on the on the student society web site at www.mse.umd.edu/mates/.

Materials Research Society (MRS)
The Materials Research Society (MRS), a professional research society for the field has a student chapter in the Department. The chapter organizes student research presentations, invites prospective employers for discussions and collectively provides a forum for student-faculty interactions. More information is available by contacting Professor Salamanca-Riba at

riba@umd.edu.

Alpha Sigma Mu
Alpha Sigma Mu is the International Professional Honor Society for Materials Science and Engineering. Students with outstanding scholarship are nominated for membership and are eligible to be nominated for scholarships. If you have any questions, contact Professor Robert Briber at rbriber@umd.edu.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The Department holds an open house in both the fall and spring semesters. Participants in these open houses may apply for a $2000 Top Terp scholarship. Other scholarships are available through the A. James Clark School of Engineering. There are also research internships available for students to work with faculty in the Department.

Awards and Recognition

Each year, the Department selects outstanding students for the following awards:

Chair's Outstanding Senior Award

Outstanding Materials Student Service Award

Materials Science and Engineering Student Research Award

The professional materials oriented societies sponsor awards to recognize outstanding scholarship and undergraduate research.

ASM International www.asminternational.org/

The Minerals, Metals, and Materials Society (TMS) www.tms.org/TMSHome.html

American Ceramic Society (ACerS) www.ceramics.org/

Materials Research Society (MRS) www.mrs.org

All students enrolled in the Materials Science and Engineering program are encouraged to work with their advisor who in their junior and senior years will guide them towards nomination for these awards.

MATHEMATICS (MATH)

College of Computer, Mathematical, & Natural Sciences

1117 Mathematics Building, 301-405-5053
www-math.umd.edu
Chair: S. Wolpert (Chair, Dist Scholar Teacher)
Professors: J. Adams (Chair, Dept APT Committee), R. Balan, J. Benedetto (Dist Scholar Teacher), P. Brosnan, S. Cerrai, J. Cohen, W. Czaja, D. Dolgopyat, P. Fitzpatrick (Assoc Chair, Faculty Affairs), G. Forni, M. Freidlin (Dist Univ Prof), W. Goldman (Dist Scholar Teacher), M. Grillakis, D. Gulick (Assoc Chair, Course Staffing), T. Haines, S. Halperin, D. Hamilton, X. He, P. Jabin (Interim Director, CSCAMM), M. Jakobson, A. Kagan, V. Kaloshin (Brin Chair), B. Kedem, L. Koralov, M. Laskowski, C. Levermore (Dist Scholar Techer), D. Levy (Dist Scholar Teacher), M. Machedon (Assoc Chair, Graduate Studies), D. Margetis, A. Mellet, J. Millson, R. Nochetto, S. Novikov (Dist Univ Prof), K. Okoudjou (Assoc Chair, Undergraduate Studies), N. Ramachandran, J. Ren, J. Rosenberg (Davis Prof), J. Schafer (Assoc Co-Chair, Course Staffing), E. Slud, E. Tadmor (Dist Univ Prof), H. Tamvakis, K. Trivisa (Director of AMSC Program), L. Washington (Dist Scholar Teacher), R. Wentworth, S. Wolpert (Dist Scholar Teacher)
Associate Professors: K. Melnick, Y. Rubinstein, P. Smith (Statistics Director), T. VonPetersdorff
Assistant Professors: J. Bedrossian (Asst Prof), M. Cameron, A. Gholampour, T. Saegusa (Asst Prof), T. Sun (Asst Prof), C. Zickert
Instructors: B. Bezejouh (Lecturer), A. Bruckheim (Lecturer), E. Hamilton (Lecturer), S. Kcenich (Lecturer), E. Kuz (Lecturer), T. Long (Lecturer), I. Markou (Lecturer), S. Orsetti, R. Rosca (Lecturer), B. Sanders (Lecturer, General Assistant), N. Tchetcherina (Lecturer), C. Terpos, A. Wang (Lecturer)
Senior Lecturer: C. Cremins (Senior Lecturer), J. Daberkow (Senior Lecturer), D. Franklin (Senior Lecturer), K. McLaren (Senior Lecturer), T. Pilachowski (Senior Lecturer), J. Stone (Senior Lecturer), J. Wyss-Gallifent (Senior Lecturer)
Lecturers: S. Chadwick (Lecturer), S. Chimiak (Lecturer), R. Ebrahimian (Lecturer), H. Hasson (Lecturer), A. Khurana (Lecturer), N. Manning (Lecturer), W. Schildknecht (Acad Prog Coord), K. Truman (Acad Advisor), K. Williams (Lecturer), W. Wong (Lecturer), A. Yashinski (Lecturer)
Affiliate Professors: H. Elman (Prof, Affiliate Prof), W. Gasarch (Prof, Affiliate Prof), S. Gates (Dist Unv Prof, Rgnts Prof), D. O'Leary, G. Stewart (Dist Univ Prof)
Adjunct Professors: M. Bhatia, B. Lackey (Adjunct Prof), J. Xu
Adjunct Assistant Professors: C. Miller (Visit Asst Prof)
Professors Emeriti: W. Adams, J. Alexander, S. Antman (Dist Univ Prof Emeritus), J. Auslander, I. Babuska (Dist Univ Prof Emeritus), C. Berenstein, K. Berg (Assoc Prof Emeritus), M. Boyle, M. Brin, J. Cooper, E. Correl, J. Dancis (Assoc Prof Emeritus), G. Ehrlich, R. Ellis, J. Fey, H. Glaz, J. Goldhaber, R. Good, P. Green, M. Heins, G. Helzer (Assoc Prof Emeritus), R. Herb, J. Horvath, B. Hunt (Prof Emeritus), R. Johnson, R. Kellogg, H. King, W. Kirwan (Former Chancellor), A. Kleppner, D. Kueker, D. Lay (Prof Emeritus), G. Lehner, R. Lipsman, N. Markley, U. Neri, F. Olver (Prof Emeritus), J. Owings, J. Sather (Assoc Prof Emeritus), D. Schneider (Assoc Prof Emeritus), C. Warner, P. Wolfe, G. Yang, J. Yorke (Dist Univ Prof Emeritus)

Visiting Faculty: M. Macasieb (Visit Asst Prof), C. Rosendal (Visit Prof), F. Weber (Post-Doc Assoc, Visit Lecturer), S. Yeakel (Visit Asst Prof)

The Major

The program in Mathematics leads to a degree of Bachelor of Science in Mathematics and offers students training in preparation for graduate work, teaching, and positions in government or industry. Mathematical training is integrated with computer use in several courses. Because a strong mathematical background is important in many fields, over half of UMCP Mathematics majors are double majors. Additional information on these topics and mathematics is available from the departmental website.

Program Objectives

The Department of Mathematics educates its majors in a broad range of modern mathematics while instilling in them a strong ability to solve problems, apply mathematics to other areas, and create rigorous mathematical arguments. The program prepares the majors to further their mathematical education in graduate school, or to teach at the secondary school level, or to work in government or business.

Program Learning Outcomes

1. Students will acquire problem-solving skills in a broad range of significant mathematics.
2. Students will gain an understanding of what constitutes mathematical thinking, including the ability to produce and judge the validity of rigorous mathematical arguments.
3. Students will be able to communicate mathematical ideas and arguments.
4. Students will be prepared to use mathematics in their future endeavors, not only in the discipline of mathematics, but also in other disciplines.

Academic Programs and Departmental Facilities

Combined B.S./M.A. Program in Mathematics

The Department of Mathematics offers a combined B.S./M.A. degree program for students with exceptional ability and interest in mathematics. Students enrolled in the Combined Degree Program may count up to 9 credits of coursework taken for their undergraduate degree toward the M.A. degree as well. For further information, please see the Mathematics Department webpage: http://www-math.umd.edu/undergraduate/math-majors.html

Placement in Courses

The Department of Mathematics has a large offering to accommodate a great variety of background, interests, and abilities. The department permits students to take any course for which they have the appropriate background, regardless of formal course work. For example, students with a high school calculus course may be permitted to begin in the middle of the

calculus sequence even if they do not have advanced standing. Students may obtain undergraduate credit for mathematics courses in any of the following ways: passing the appropriate CEEB Advanced Placement Examination, passing standardized CLEP examinations, and through the department's Credit-by-Examination. Students are urged to consult with advisors from the Department of Mathematics to assist with proper placements.

Statistics and Probability and Applied Mathematics

Courses in statistics and probability, and applied mathematics are offered by the Department of Mathematics. These courses are open to non-majors as well as majors, and carry credit in mathematics. Students wishing to concentrate in the above may do so by choosing an appropriate program under the Department of Mathematics.

Requirements for the Major

There are three tracks for the major: the traditional track, the secondary education track, and the statistics track. The secondary education track is for students seeking to become certified to teach mathematics at the secondary level. Each mathematics major must complete each required course with a grade of C- or better.

TRADITIONAL TRACK

		Credits
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
MATH310	Introduction to Mathematical Proof	3
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH414	Differential Equations	3
MATH436	Differential Geometry of Curves and Surfaces I	3
MATH462	Partial Differential Equations for Scientists and Engineers	3
Eight MATH/AMSC/STAT courses at the 400-level or higher; must include:**		
MATH410	Advanced Calculus I	3
	One from:	
MATH401	Applications of Linear Algebra	3
MATH403	Introduction to Abstract Algebra	3
MATH405	Linear Algebra	3
	One from:	
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	Depth Requirement; a one year sequence chosen from the following:	

MATH410/411	Advanced Calculus I and II	6
MATH410/412	Advanced Calculus I / Adv Calc w/Applications	6
MATH403/404	Introduction to Abstract Algebra / Field Theory	6
MATH403/405	Introduction to Abstract Algebra / Linear Algebra	6
STAT410/420	Introduction to Probability Theory / Introduction to Statistics	6

Electives [+]

400 level courses *(may not include: MATH 400, 461, 478, 480-484, STAT 464)*

One from:

(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)

CMSC106	Introduction to C Programming	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
PHYS165	Introduction to Programming in the Physical Sciences	3

Supporting three-course sequence

Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.) Choose one sequence:

Sequence One

PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
PHYS270/271	General Physics: Electrodynamics, Light, Relativity and Modern/Lab	4

Sequence Two

PHYS171	Introductory Physics: Mechanics and Relativity	3
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3

Sequence Three

ENES102	Statics	3
PHYS161	General Physics: Mechanics and Particle Dynamics	3
ENES220	Mechanics of Materials	3

Sequence Four

CMSC132	Object-Oriented Programming II	4
CMSC216	Introduction to Computer Systems	4
CMSC250	Discrete Structures	4

Sequence Five

CHEM146/147	Principles of General Chemistry/Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4

Sequence Six

CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4

CHEM231/232	Organic Chemistry I/Lab	4
CHEM241/242	Organic Chemistry II/Lab	4
	Sequence Seven	
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
ECON305	Intermediate Macroeconomic Theory and Policy, **OR**	3
ECON306	Intermediate Microeconomic Theory	3
	Sequence Eight	
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3

** Or honors sequence: MATH 340-341.Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.*

*** At least four courses must be taken at College Park.*

+ Students with a strong interest in applied mathematics may, with the approval of the Undergraduate Office, substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper-level elective course.

APPLIED MATHEMATICS TRACK

		Credits
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
MATH310	Introduction to Mathematical Proof	3
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH462	Partial Differential Equations for Scientists and Engineers	3
Eight MATH/AMSC/STAT courses at the 400-level or higher; must include:**		
MATH410	Advanced Calculus I	3
STAT410	Introduction to Probability Theory	3
STATxxx	*One additional STAT course other than STAT400, STAT410, STAT464*	3
	One from:	
MATH401	Applications of Linear Algebra	3
MATH405	Linear Algebra	3
	One from:	
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	One from:	
MATH416	Applied Harmonic Analysis	3
MATH420	Mathematical Modeling	3
MATH424	Introduction to Mathematical Finance	3
MATH431	Geometry of Computer Graphics	3

MATH456	Cryptology	3
MATH462	Partial Differential Equations	3
MATH464	Transform Methods	3
MATH475	Combinatorics and Graph Theory	3
	Depth Requirement; a one year sequence chosen from the following:	
MATH410/411	Advanced Calculus I and II	6
MATH410/412	Advanced Calculus I / Adv Calc w/Applications	6
MATH416/464	Applied Harmonic Analysis / Transform Methods	6

Electives[+]

400 level courses *(may not include: MATH400, 461, 478, 480-484, STAT464)*

One from:

(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)

CMSC106	Introduction to C Programming	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
ENEE150	Intermediate Programming Concepts for Engineering	4
PHYS165	Introduction to Programming in the Physical Sciences	3

Supporting three-course sequence

Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.) Choose one sequence:

Sequence One

PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
PHYS270/271	General Physics: Electrodynamics, Light, Relativity and Modern/Lab	4

Sequence Two

PHYS171	Introductory Physics: Mechanics and Relativity	3
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3

Sequence Three

ENES102	Statics	3
PHYS161	General Physics: Mechanics and Particle Dynamics	3
ENES220	Mechanics of Materials	3

Sequence Four

CMSC132	Object-Oriented Programming II	4
CMSC216	Introduction to Computer Systems	4
CMSC250	Discrete Structures	4

Sequence Five

CHEM146/147	Principles of General Chemistry/Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4
	Sequence Six	
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
CHEM241/242	Organic Chemistry II/Lab	4
	Sequence Seven	
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
ECON305	Intermediate Macroeconomic Theory and Policy, **OR**	3
ECON306	Intermediate Microeconomic Theory	3
ECON325	Intermediate Macroeconomic Analysis, **OR**	3
ECON326	Intermediate Microeconomic Analysis	3
	Sequence Eight	
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3
	Sequence Nine	
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab, **OR**	4
CHEM146/147	Principles of General Chemistry/Lab	4
	Sequence Ten	
ASTR120	Introductory Astrophysics – Solar System	3
ASTR121	Introductory Astrophysics – Stars and Beyond	4
PHYS161	General Physics: Mechanics and Particle Dynamics, **OR**	3
PHYS171	Introductory Physics: Mechanics and Relativity	3
	Sequence Eleven	
GEOL100/101	Physical Geology	4
	Two From:	
GEOL322	Mineralogy	4
GEOL340	Geomorphology	4
GEOL341	Structural Geology	4
GEOL375	Introduction to the Blue Ocean	4
	Sequence Twelve	
AOSC200/201	Weather and Climate	4
	Two additional 400-level AOSC courses	6

** Or honors sequence: MATH340-341.Completion of MATH340 satisfies the requirement for MATH241; completion of MATH340-341 satisfies the requirement for MATH240-241-246.*

*** At least four courses must be taken at College Park.*

[+] With the approval of the Undergraduate Office, students may substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper-level elective course.

Secondary Education Track

		Credits
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4
MATH241	Calculus III	4
MATH310	Introduction to Mathematical Proof	3
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH341	Multivariable Calculus, Linear Algebra, Differential Equations	4
MATH401	Applications of Linear Algebra	3
MATH420	Mathematical Modeling	3
MATH452	Introduction to Dynamics and Chaos	3
MATH462	Partial Differential Equations for Scientists and Engineers	3
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	Seven MATH/AMSC/STAT courses at the 400-level or higher; must include:**	
MATH410	Advanced Calculus I	3
MATH430	Euclidean and Non-Euclidean Geometries	3
	One from:	
MATH402	Algebraic Structures	3
MATH403	Introduction to Abstract Algebra	3
	One from:	3
STAT400	Applied Probability and Statistics I	3
STAT410	Introduction to Probability Theory	3
	One from:	
MATH406	Introduction to Number Theory	3
MATH445	Elementary Mathematical Logic	3
MATH446	Axiomatic Set Theory	3
MATH456	Cryptology	3
MATH475	Combinatorics and Graph Theory	3
	Electives	
	400-level MATH/AMSC/STAT course *(may not include: MATH400, 461,478, 480-484, or STAT464)*	
	One from:	
	(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)	
CMSC106	Introduction to C Programming	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4

ENAE202	Aerospace Computing	3
PHYS165	Introduction to Programming in the Physical Sciences	3
	Education Requirements [+]	
EDCI450	Student Teaching Seminar in Secondary Education: Mathematics	1
EDCI451	Student Teaching in Secondary Schools: Mathematics	12
	Supporting Sequence *One of the following supporting two course sequences. These are intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.)*	
	Sequence One	
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
	Sequence Two	
PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
	Sequence Three	
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
	Sequence Four	
ASTR120	Introductory Astrophysics - Solar System	3
ASTR121	Introductory Astrophysics II - Stars and Beyond	4
	Sequence Five	
GEOL100/110	Physical Geology/Lab	4
GEOL322	Mineralogy, **or**	4
GEOL340	Geomorphology, **or**	4
GEOL341	Structural Geology, **or**	4
GEOL375	Introduction to the Blue Ocean	3
	Sequence Six	
AOSC200/201	Weather and Climate/Lab **and**	4
AOSCxxx	Any 400 level AOSC course	3

**Or honors sequence: MATH 340-341.Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.*

***At least four courses must be taken at College Park.*

[+] *The student-teaching pair EDCI 450-451 is 13 credits and has further prerequisites in the College of Education. In order to take these courses the student must be admitted into the College of Education. A student in the secondary education track of the mathematics major would normally be expected to receive a double major in Mathematics and Mathematics Education.*

Statistics Track

		Credits
	Introductory Sequence*	
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH240	Introduction to Linear Algebra	4

MATH241	Calculus III	4
MATH310	Introduction to Mathematical Proof	3
	One from:	
MATH246	Differential Equations for Scientists and Engineers	3
MATH414	Differential Equations	3
	Eight MATH/AMSC/STAT courses; must include:**	
MATH410	Advanced Calculus I	3
STAT410	Introduction to Probability Theory	3
STAT430	Introduction to Statistical Computing and SAS	3
	One from:	
AMSC460	Computational Methods	3
AMSC466	Introduction to Numerical Analysis I	3
	One from:	
MATH401	Applications of Linear Algebra	3
MATH405	Linear Algebra	3
	One from:	3
STAT401	Applied Probability and Statistics II	3
STAT420	Introduction to Statistics	3
	Two additional courses from the following list:	
STAT4xx	Any 400-level or higher STAT courses *(except STAT 464)*	
MATH411	Advanced Calculus II	3
MATH412	Advanced Calculus with Applications	3
MATH414	Differential Equations	3
MATH424	Introduction to the Mathematics of Finance	3
MATH464	Transform Methods for Scientists and Engineers	3
	One from: *(A student may be exempt from this requirement if (s)he can demonstrate adequate programming knowledge from prior course or work experience.)*	
CMSC106	Introduction to C Programming	4
CMSC122	Introduction to Computer Programming via the Web	3
CMSC131	Object-Oriented Programming I	4
CMSC132	Object-Oriented Programming II	4
ENAE202	Aerospace Computing	3
PHYS165	Introduction to Programming in the Physical Sciences	3
	Supporting three-course sequence *Intended to broaden the student's mathematical experience. (Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas comparable to the sequences on this list.) Choose one sequence.*	
	Sequence One	
PHYS161	General Physics: Mechanics and Particle Dynamics	3
PHYS260/261	General Physics: Vibration, Waves, Heat, Electricity and Magnetism/Lab	4
PHYS270/271	General Physics: Electrodynamics, Light, Relativity and Modern/Lab	4
	Sequence Two	
PHYS171	Introductory Physics: Mechanics and Relativity	3

PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3
	Sequence Three	
ENES102	Statics	3
PHYS161	General Physics: Mechanics and Particle Dynamics	3
ENES220	Mechanics of Materials	3
	Sequence Four	
CMSC132	Object-Oriented Programming II	4
CMSC216	Introduction to Computer Systems	4
CMSC250	Discrete Structures	4
	Sequence Five	
CHEM146/147	Principles of General Chemistry/Lab	4
CHEM237	Principles of Organic Chemistry I	4
CHEM247	Principles of Organic Chemistry II	4
	Sequence Six	
CHEM131/132	Chemistry I - Fundamentals of General Chemistry/Lab	4
CHEM231/232	Organic Chemistry I/Lab	4
CHEM241/242	Organic Chemistry II/Lab	4
	Sequence Seven	
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
ECON305	Intermediate Macroeconomic Theory and Policy, **OR**	3
ECON306	Intermediate Microeconomic Theory	3
	Sequence Eight	
BMGT220	Principles of Accounting I	3
BMGT221	Principles of Accounting II	3
BMGT340	Business Finance	3

**Or honors sequence: MATH340-341.Completion of MATH340 satisfies the requirement for MATH241; completion of MATH340-341 satisfies the requirement for MATH240-241-246.*
***At least four courses must be taken at College Park.*

Other Requirements for the Major

Areas of Study

Within the Department of Mathematics there are a number of identifiable areas which students can pursue to suit their own goals and interests. They are briefly described below. Note that they do overlap and that students need not confine themselves to one of them.

1. Pure Mathematics: Courses that belong to this area include: MATH402, 403, 404, 405, 406, 410, 411, 430, 432, 436, 437, 445, 452, 456, and STAT410, 420. Students preparing for graduate school in mathematics should include MATH403, 405, 410, 411 and 463 (or 660) in

their programs. MATH432 (or 730) is also desirable. Other courses from the above list and graduate courses are also appropriate.

2. Secondary Teaching: In addition to the courses required by the Secondary Education Track, the following courses are particularly suited for students preparing to teach: MATH401, 406, 445, 470, and 475.

Students who are interested in secondary teaching should contact also the College of Education for certification requirements and other information: www.education.umd.edu/studentinfo.

3. Statistics: For a student with a Bachelor's degree seeking work requiring some statistical background, the minimal program is STAT400-401. To work primarily as a statistician, one should combine STAT400-401 with STAT430 and at least one more statistics course, most suitably, STAT440. A deeper sequence is STAT410, 420, 430. This offers a better understanding and wider knowledge of statistics and is a general purpose program (i.e., does not specify one area of application). For economics applications, MATH424, STAT400, 401, 430, 440 should be considered. To prepare for graduate work, STAT410 and 420 give the best background, with STAT430, 440 added at some later stage.

4. Computational Mathematics: There are a number of math courses which emphasize the computational aspects of mathematics including the use of the computer. They are AMSC460, 466, MATH431, 456, 475 and STAT430. Students interested in this area should take the CMSC supporting sequence as soon as possible.

5. Applied Mathematics: The courses that lead most rapidly to applications are the courses listed above in 3 and 4 and MATH401, 416, 420, 452, 462, and 464. A student interested in applied mathematics should obtain, in addition to a solid training in mathematics, a good knowledge of at least one area in which mathematics is currently being applied. Concentration in this area is good preparation for employment in government and industry or for graduate study in applied mathematics.

Requirements for the Minor

The Department of Mathematics offers minors in the following areas:

Actuarial Mathematics
Mathematics
Statistics

A minor offers a structured program of study outside a student's major. See http://www-math.umd.edu/minors.html.

Advising

Advising for Math majors is mandatory. Students are required to sign up for an advising appointment online, beginning the week before early registration. Students who have been away

more than two years may find that due to curriculum changes, the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Department Advisor to make appropriate plans.

Undergraduate Research Experiences

There are a variety of undergraduate research opportunities in mathematics at Maryland. For detailed information, see http://www-math.umd.edu/undergraduate/opportunities.html?id=102

Honors Program

The Mathematics Honors Program is designed for students showing exceptional ability and interest in mathematics. Its aim is to give a student the best possible mathematics education. A precise statement of the requirements may be found at http://www-math.umd.edu/departmental-honors.html

The department also offers a special department honors sequence MATH340-341 for promising freshmen with a strong mathematical background (including calculus). Participants in Honors College may also enroll in special honors sections of the lower-level mathematics courses (MATH140H, 141H, 241H, 246H). Students in Math340-341 and the special honors sections need not be Math majors.

The Mathematics departmental honors sequence and the Honors College program are distinct, and enrollment in one does not imply acceptance in the other.

Student Societies and Professional Organizations

There are several student-run groups within the department: the Math Club, Pi Mu Epsilon, the Actuarial Club, and Women in Math.

Math Club:

http://mathclub.math.umd.edu/

Pi Mu Epsilon:

http://www.math.umd.edu/pme/index.html

Actuarial Math Club:

http://actuarial.math.umd.edu/

Women in Math:

http://wim.math.umd.edu/

Awards and Recognition

Aaron Strauss Scholarships: One is awarded each spring to an outstanding non-graduating math major. The recipient receives full remission of (in-state) tuition for the following academic year. Applications may be obtained early in the previous spring semester from the Mathematics Undergraduate Office, 1117 Mathematics Building.

Aziz Mathematics Scholarship: The Aziz scholarship is the department's highest award of mathematical excellence for a non-graduating math major. When eligible, the recipient receives a monetary award to cover in-state tuition in the following academic year.

Dan Shanks Award: This award is for an undergraduate student studying computational number theory and related areas, based on merit.

Dan Sweet Scholarship: A one-semester stipend awarded to a math major on the basis of merit.

Higginbotham Prize: A monetary award is made to an outstanding junior math major in the spring.

John and Sabrina Konter Endowed Scholarship: This is an award for an undergraduate math major with an interest in applications to real world problems in business and industry. Take or plan to take probability and statistics and at least 12 credits hours in one or more: economics, business, physics or computer science.

Milton Abramowitz Award: A monetary award is made to an outstanding junior or senior Math major in the spring.

Outstanding Senior Award: A monetary award is made to the outstanding graduating Math major.

Strauss Teaching Assistantship: This is an opportunity for outstanding Math majors to work as an undergraduate TA. Apply in the spring for the following year.

For further information on awards, see http://www-math.umd.edu/undergraduate/math-majors.html?id=166.

Mathematics Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

MECHANICAL ENGINEERING (ENME)

A. James Clark School of Engineering
2181 Glenn L. Martin Hall, 301-405-2410
www.enme.umd.edu
ENMEundergrad@umd.edu
Chair: B. Balachandran, (Minta Martin Prof and Chair), H. Bruck, (Assoc Chair Academic Affairs, Dir Graduate Studies), D. DeVoe, (Assoc Chair Research and Admin)
Director: K. Kiger (Keystone Prof, Dir UG Studies)
Professors: S. Azarm, A. Bar-Cohen (Dist Univ Prof), A. Baz (Minta Martin and Keystone Prof), P. Bernard, A. Christou, A. Dasgupta (Jeong Kim Prof), J. Duncan (Keystone Prof), W. Fourney (Keystone Prof & Assoc Dean), A. Gupta, (Dist Univ Prof), B. Han (Keystone Prof), J. Herrmann, J. Kim (Keystone Prof), P. McCluskey, M. Modarres (Nicole J. Kim Prof, Director CRR, C.D. Mote, Jr. (Glenn L. Martin Inst Prof and Regents Prof), M. Ohadi, M. Pecht (George E. Dieter Prof & Dir CALCE), R. Radermacher (Minta Martin Prof, Dir CEEE), P. Sandborn (Dir MTECH), L. Schmidt, E. Smela, J. Srebric, B. Yang, M. diMarzo
Associate Professors: S. Bergbreiter, D. Bigio, N. Chopra, P. Chung, M. Cukier, T. Li (Keystone Prof), G. Pertmer, A. Riaz, M. Yu, G. Zhang
Assistant Professors: S. Das, M. Fuge, J-O. Hahn, J. Larsson, R. Sochol, M. Vaughn-Cooke
Lecturers: S. Arul (Lecturer), D. Burke (Lecturer), Z. Eshete (Lecturer), J. Forsythe (Lecturer), H. Haslach (Senior Lecturer), S. Mitchell (Lecturer), V. Nguyen (Res Assoc, Lecturer), R. Sanders (Senior Lecturer), D. Schug (Lecturer), C. Thamire (Senior Lecturer)
Affiliate Professors: E. Kalnay (Dist Univ Prof, Affiliate Prof), D. Lathrop (Prof, Affiliate Prof), E. Oran (Glenn L. Martin Inst. Prof,Affiliate Prof), D. Riley (Affiliate Prof, Prof), A. Trouve (Prof, Lecturer), M. Zachariah (Affiliate Prof)
Affiliate Associate Professors: L. Hu (Assoc Prof, Lecturer), A. Marshall (Assoc Prof, Affil Assoc Prof), S. Stoliarov (Assoc Prof, Affil Assoc Prof), P. Sunderland (Assoc Prof, Affil Assoc Prof)
Affiliate Assistant Professors: M. Gollner (Asst Prof, Aff Asst Prof), H. Xu (Aff Asst Prof)
Adjunct Associate Professors: D. Barrett (Adjunct Assoc Prof), D. Findlay (Adjunct Assoc Prof), L. Hamilton (Lecturer, Adjunct Assoc Prof), V. Krivtsov (Adjunct Assoc Prof), G. Schultz
Professors Emeriti: D. Anand, R. Armstrong, B. Berger, F. Buckley, P. Cunniff, J. Dally (Glenn L. Martin Inst Prof), G. Dieter (Glenn L. Martin Inst Prof), D. Holloway, J. Kirk, E. Magrab, C. Marks, A. Mosleh, U. Piomelli (Prof Emeritus), R. Sanford, C. Sayre, J. Sengers (Dist Univ Prof Emeritus), M. Talaat, W. Walston (Assoc Prof Emeritus), J. Yang

The Major

Mechanical engineering is the broadest of the engineering disciplines. It is concerned with the design, manufacture, and operation of a wide range of components, devices, or systems. The field comfortably encompasses applications ranging from micro-mechanical surgical systems to internal combustion engines for Formula One racecars or giant turbines for renewable energy wind farms. A fitting adage for the discipline would be ***turning ideas into reality***.

Graduates of the program will possess the skills and the knowledge-base critical for success in today's marketplace, with the problem solving expertise and flexibility necessary to adapt as

technology and society evolve. Students must be proficient in the traditional fundamentals of mechanical engineering such as solid and fluid mechanics, thermodynamics, transfer processes, materials engineering, electronic instrumentation and measurements, controls, and design. However, they will also explore new/emerging areas through a variety of electives such as smart structures, machine learning, additive manufacturing, Lean Six Sigma, and medical robotics.

Attributes such as teamwork, ethics, and leadership are emphasized in the curriculum. The program is designed to integrate out-of-classroom experiences, helping students explore career options and apply what they are learning in the real world. Students can work with faculty on research projects, serve as teaching fellows, pursue leadership opportunities through clubs, and participate in national competitions such as the Formula SAE/Baja SAE teams or the DOE Solar Decathlon. The flexibility of the curriculum, and frequent offering of required courses, allows many of our students to participate in study abroad or cooperative education opportunities.

The Bachelor of Science degree in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org , 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700.

Courses offered by this department may be found under the following acronym:

Program Objectives

1. Graduates will provide value in their chosen career path, whether for mastery of the disciplines central to mechanical engineering or for the broader analytical skills, critical thinking, innovation and/or creative abilities provided by their engineering education.

2. Students will utilize skills in teamwork, leadership, and communication gained in their program of study, and act in a professional and ethical manner in the area in which they apply their degree.

3. Graduates will show a commitment to on-going professional development, whether through graduate study, research programs, training courses, or leadership opportunities thereby adapting to an evolving, competitive global work environment.

Program Learning Outcomes

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as analyze and interpret data
c. an ability to design a system, component or process to meet desired needs within realistic constraints
d. an ability to function on multi-disciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively

h. the broad education necessary to understand the impact of engineering solutions
i. a recognition of the need for, and an ability to engage in, life-long learning
j. a knowledge of contemporary issues
k. an ability to use techniques, skills, and modern engineering tools necessary for engineering practice

Admission to the Major

Admission requirements are identical to those set by the A. James Clark School of Engineering. See A. James Clark School of Engineering under Colleges and Schools on this site.

Requirements for the Major

	Freshman Year	**Credits First Sem**	**Credits Second Sem**
MATH140	Calculus I	4	
MATH141	Calculus II		4
CHEM135	General Chemistry for Engineers	3	
PHYS161	General Physics		3
ENGL101	Introduction to Writing	3	
ENES100	Introduction to Engineering Design *(**can be taken 1st or 2nd semester*)	3**	
ENES102	Mechanics I (***can be taken 1st or 2nd semester)*		3**
	General Education Requirements		6
	Total Credits	13	16

	Sophomore Year	**Credits First Sem**	**Credits Second Sem**
MATH206	Intro to Matlab	1	
MATH241	Calculus III	4	
MATH246	Differential Equations		3
PHYS260/261	General Physics	4	
PHYS270/271	General Physics		4
ENES220	Mechanics II	3	
ENES221	Dynamics	3	
ENES232	Thermodynamics		3
ENME272	Computer Aided Design		2
	General Education Requirements	3	3
	Total Credits	18	15

		Credits	**Credits**

	Junior Year	First Sem	Second Sem
ENME331	Fluid Mechanics	3	
ENME332	Transfer Processes		3
ENME350	Electronics and Instrumentation I	3	
ENME351	Electronics and Instrumentation II		3
ENME361	Vibration, Controls, & Optimization I		3
ENME371	Product Engineering and Manufacturing		3
ENME382	Introduction to Materials Engineering	3	
ENME392	Statistical Methods for Product and Process Development	3	
ENGL393	Technical Writing		3
	General Education Requirements	3	
	Total Credits	15	15

	Senior Year	Credits First Sem	Credits Second Sem
ENME462	Vibration, Controls, & Optimization II		3
ENME472	Integrated Product and Process Development II	3	
ENME400	Machine Design	3	
ELECTIVES	Technical Electives	6	9
	General Education Requirements	3	3
	Total Credits	15	15

A minimum of 120 credits are required for a degree.

Sample Elective Topics
Waste Technology
Bio-Inspired Robotics
Computer-Aided Design & Manufacturing
Packaging of Electronic Systems
Energy Conversion
Engineering Management
Environmental Engineering
Flexible Macro-electronics
Automotive Design
Micro-nano Robotics
Manufacturing
Medical Robotics
Fiber Optics
Micro-Electro-Mechanical Systems
Nuclear Reactor Engineering

Advising

Mechanical engineering students are required to meet with a departmental adviser each semester prior to registering for the following term. Mechanical Engineering has a team of faculty and staff academic advisors. Please contact the department's Undergraduate Advising Office, 2182-2188 Glenn L. Martin Hall, at 301-405-2199, for more information or review resources including office hours and the appointment process, on-line at meugrad.umd.edu.

Co-op Programs

Participation in the Cooperative Education Program is encouraged. See Clark School of Engineering under Colleges and Schools on this site.

Honors Program

The Honors Program is administered through the Clark School of Engineering. Individual honors and awards are presented based on academic excellence and extracurricular activities.

Student Societies and Professional Organizations

Student chapters of professional societies include the American Society of Mechanical Engineers, the Society of Automotive Engineers, the Mechanical Contractors Association and the American Society of Heating, Refrigeration and Air Conditioning Engineers. The mechanical engineering honor society is Pi Tau Sigma. Information regarding these societies may be obtained at 2186 Glenn Martin Hall.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

A limited amount of scholarship aid is available through the Department of Mechanical Engineering. Information may be obtained in the Undergraduate Advising Office. Information about Clark School of Engineering scholarships and Department of Mechanical Engineering scholarships is also available on-line at http://www.engrscholarships.umd.edu/scholarships.

Meteorology

See Atmospheric and Oceanic Science.

Middle School Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

SCHOOL OF MUSIC (MUSC)

College of Arts and Humanities
2110 Clarice Smith Performing Arts Center, 301-405-5549
www.music.umd.edu
Chair: J. Geary (Prof & Dir)
Director: L. DeBoy (Assoc. Dir.), O. Haldey (Dir. Graduate Studies), M. Tsong (Dir. Undergraduate Studies), P. Warfield (Assoc. Dir.)
Professors: C. Balthrop, D. Cossa, T. DeLio, L. Dedova, P. Gekker, B. Haggh-Huglo, D. Hanninen, M. Hewitt, M. Hill, L. Mabbs, E. Maclary, G. Miller, D. Salness, R. Sloan, J. Stern, C. Vadala, M. Votta, J. Witzleben, D. Ziegler
Associate Professors: R. DiLutis, J. Fry, B. Gowen, R. King, K. Murdock, M. Tsong, G. Wilson, M. Wilson
Assistant Professors: K. Elpus, C. Kier, E. Kutz, I. Muresanu, S. Prichard, F. Rios, W. Robin
Lecturers: D. Alvi, F. Ames, L. Arsenault, T. Baldwin, R. Barber, W. Evans, D. Fedderly, D. Foster, D. Froom, S. Fuller, J. Gilliam (Assoc Art-in-Res), A. Goldman, M. Guilford (Assoc Art-in-Res), E. Heckscher, L. Hinkle, P. Kellner, G. Kunkel, R. Layton, J. Lee, A. Manzo, R. McReynolds, P. Munds, K. Okamoto, N. Olcott, R. Oppelt, E. Osterloh, J. Ozment, T. Powell, M. Randall, C. Redd, T. Robison, L. Schnitker, E. Shin, K. Slowik, I. Suadin, S. Thursby, N. Tochka, K. Trahan, M. Volchok, S. Wang, F. Xie, D. Zimmerman
Professors Emeriti: H. Cohen, E. Elsing, G. Fischbach, E. Garvey, E. Head, N. Heim, E. Helm, R. Johnson, F. Loup, L. Major, L. Moss, J. Pacholczyk, R. Provine, S. Shelley, E. Urban, J. Wakefield, R. Wexler

Program Objectives

The objectives of the School of Music are (1) to provide professional musical training based on a foundation in the liberal arts; (2) to help the general student develop sound critical judgment and discriminating taste in the performance and literature of music; (3) to prepare the student for graduate work in the field; and (4) to prepare the student to teach music in the public schools.

Program Learning Outcomes

Students will understand, analyze, and demonstrate knowledge of fundamental concepts of aural skills.

- Students will be able to perform a variety of repertoire appropriate for their selected instrument as a soloist and member of an ensemble.

- Composition track students will compose original works in a variety of media.

- Jazz Studies track students will demonstrate in-depth knowledge and skills in improvisation in a variety of styles.

- Music teacher candidates will have in-depth knowledge of music as described by professional, state, and institutional standards. Teacher candidates can effectively plan classroom-based instruction and activities for their roles as teachers. Teacher candidates' knowledge, skills, and dispositions are applied effectively in practice.

Academic Programs and Departmental Facilities

With the above objectives in mind, the School of Music offers the following three bachelor degrees: (a) the Bachelor of Music, with majors in theory, composition, and music performance, (b) the Bachelor of Arts, with a major in music and (c) Bachelor of Music Education in conjunction with and certification from the College of Education.

The UM School of Music is located in the Clarice Smith Performing Arts Center, a 318,000 square foot campus facility dedicated to Music, Theatre, Dance and Performance Studies. Completed in 2001, the Center includes six state-of-the-art performance venues, the Michelle Smith Performing Arts Library, and specialized classroom and rehearsal spaces.

Admission to the Major

Admission to all undergraduate music degree programs (B.M., B.A., B.M.E. and minor) is based on a required performance audition and/or interview before a faculty committee. An application to the School of Music is required to be scheduled for an audition. In some instruments/areas, a prescreen recording is also required. The application, as well as audition dates and requirements are available at www.music.umd.edu

Placement in Courses

Required music courses and private lessons are open to music majors who have completed the specified prerequisites or their equivalents. Lessons may be available for qualified non-music majors, if resources (teacher, time, funding, facilities) are available. All large performing ensembles in the School of Music are open by audition to any student at the university.

Requirements for the Major

The Bachelor of Music Degree (BM)

Designed for qualified students with extensive pre-college training and potential for successful careers in professional music. B.M. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp, Composition, Jazz Studies and Theory.

The College of Arts and Humanities requirements of 45 3xx or 4xx-level credits and the Global Engagement Requirement are waived for students majoring in B.M. Degree programs.

Bachelor of Music (BM) Requirements:

In addition to General Education courses, BM students generally complete the following:

- 8 semesters of private lessons (Senior Recital in final semester)
- 8 semesters of large ensemble participation
- 8 semesters of small ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of form and analysis
- 1 semester of conducting
- 1 semester of music literature
- 1 semester of music pedagogy
- 1 semester of world music
- 3 credits of music electives

The BM programs vary according to instrument or emphasis. Please visit www.music.umd.edu for specific requirements.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

The Bachelor of Arts Degree in Music (BA)

Designed for qualified students whose interests include a broader liberal arts experience. The College of Arts and Humanities requirement of 45 3xx or 4xx-level credits and the Global Engagement Requirement apply to all B.A. students. B.A. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp and Jazz Studies.

Bachelor of Arts in Music (BA) Requirements:

In addition to General Education courses, BA Music students generally complete the following:

- 5 semesters of private lessons (Senior Recital in final semester)
- 5 semesters of ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of form and analysis
- 6 credits of music electives

The BA programs vary according to instrument or emphasis. Please visit www.music.umd.edu for specific requirements.

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Bachelor of Music Education (BME) Requirements

Designed for qualified students preparing for careers in PreK-12 teaching of music, the Bachelor of Music Education (BME) offered by the College of Arts and Humanities carries with it a teaching certification from the College of Education. BME degrees are offered with concentrations in either Instrumental Music Education or Choral-General Music Education. The requirements for a BME are similar to the BM program plus approximately 48 credits in music education. Please visit www.music.umd.edu for specific requirements.

In addition to General Education requirements, Music Education students generally complete the following (for a total of 134-140 credits):

- 7 semesters of private lessons (Senior Recital in final semester)
- 7 semesters of large ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of conducting
- 1 semester of world music
- 26 credits of MUED (class instruments and field experience)

- 6 credits of EDHD (Human Development)
- 3 credits of EDPS (Education Policy Studies**)**
- 3 credits of EDCI463 (Curriculum and Instruction)
- 6 credits MUED484 (Elementary Student Teaching)
- 6 credits MUED494 (Secondary Student Teaching)

No course grade below the grade of "C-" may count toward the major. An overall GPA of 2.0 in the major is required for graduation.

Requirements for the Minor

Music Performance Minor

Eighteen credit hours consisting of the following:

- Four semesters of applied lessons (MUSP302, 303, 402, 403)
- Four semesters of ensemble (chosen from MUSC129, 229, 329)
- MUSC130 Survey of Music Literature
- MUSC140 Fundamentals of Music

Admission to the minor in music performance is based on a required performance audition before a faculty committee. Audition dates and requirements are available from the School of Music office.

Students who fulfill Minor requirements will receive a Minor on the official transcript. Please contact the School of Music Office for more information.

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Advising

Departmental advising is mandatory for all music majors every semester. Please visit www.music.umd.edu to find your appropriate advisor.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Student Societies and Professional Organizations

Sigma Alpha Iota International Music Fraternity
Kappa Kappa Psi National Honorary Band Fraternity
Tau Beta Sigma National Honorary Band Sorority
Phi Mu Alpha Sinfonia Fraternity of America
The National Association for Music Education (NAfME)

Scholarships and Financial Assistance

The School of Music offers merit-based scholarships upon a student's acceptance into the School. Scholarships are based on the quality of the application, which includes the audition.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Presser Award is granted each May to a music student with junior standing who demonstrates both performance and scholastic excellence, as determined by the music faculty, and carries with it a significant financial award to help the recipient in his/her senior year.

Nutrition and Food Science (NFSC)

College of Agriculture and Natural Resources
0112 Skinner Building, 301-405-4521
www.nfsc.umd.edu
Chair: Robert T. Jackson (Acting Chair)
Director: P. McShane (Dietetic Internship), M. Mehta-Gupta (Ext Assoc), Margaret Udahogora (Undergraduate Dietetics Program)
Professors: R. Buchanan, T. Castonguay, R. Jackson, D. Lei, J. Meng, N. Sahyoun (Prof), C. Wei (Dean of AGNR), L. Yu
Associate Professors: Q. Wang
Assistant Professors: S. Lee, A. Pradhan, S. Rahaman, H. Song, R. Tikekar
Lecturers: Margaret Udahogora (Dietetics Program Director)
Professors Emeriti: R. Ahrens, P. Moser-Veillon, R. Wiley

Admission to the Major

The major in Nutrition and Food Science is not a Limited Enrollment Program (LEP). Students may either declare a major in the department at the time of application or transfer into the majors at any time thereafter. If interested in transferring into a major in NFSC, please contact the departmental office and ask to speak with an advisor.

Requirements for the Major

The department offers three areas of emphasis: dietetics, food science, and nutritional science. Each program provides for competencies in several areas of work; however, each option is designed specifically for certain professional careers.

The Dietetics major develops an understanding and competency in food, nutrition, dietetics management, clinical nutritional care, nutrition education, and community nutrition. The dietetics program is approved by the Commission on Accreditation for Dietetics Education, and qualifies students, after completion of a post-baccalaureate internship, to sit for the national exam to become a registered dietitian.

The Food Science major is concerned with the application of the fundamental principles of the physical, biological, and behavioral sciences and engineering to understand the complex and heterogeneous materials recognized as food. The food science program is approved by the Institute of Food Technologists and prepares students for careers in food industry and food safety.

The Nutritional Science major emphasizes the physical and biological sciences in relation to nutrition and the development of laboratory skills in these areas. Students in this major frequently elect to go on to graduate or medical school.

Grades. All students are required to earn a grade of "C-" or better in courses applied toward satisfaction of the major. This includes all required courses with a prefix of NFSC, as well as certain required courses in supporting fields. A list of these courses for each program may be obtained from the department office.

COURSE REQUIREMENTS

Base curriculum for all options (54 cr):

Course		Credits
NFSC100	Elements of Nutrition	3
NFSC112	Food: Science & Technology	3
BSCI170&170	Principles of Molecular and Cellular Biology and Lab	4
BSCI223	General Microbiology	4
CHEM131	General Chemistry I	3
CHEM132	General Chemistry I Laboratory	1
CHEM231	Organic Chemistry I	3
CHEM232	Organic Chemistry I Laboratory	1
CHEM241	Organic Chemistry II	3
CHEM242	Organic Chemistry II Laboratory	1
CHEM271	General Chemistry and Energetics	2
CHEM272	General Bioanalytical Chemistry Laboratory	2
ENGL101	Introduction to Writing	3
ENGL391 or 393	Advanced Composition, **or** Technical Writing	3
MATH113	College Algebra with Applications	3
	General Education: Social or Political History	3
	General Education: Literature	3
	General Education: Advanced Studies	3
	General Education: History or Theory of Art	3

Additional course requirements for option in Dietetics (66 cr):

Course		Credits
NFSC315	Nutrition During the Lifecycle	3

NFSC350	Foodservice Operations	5
NFSC380	Nutritional Assessment	3
NFSC440	Advanced Human Nutrition	4
NFSC460	Medical Nutrition Therapy	4
NFSC470	Community Nutrition	3
NFSC491	Issues and Problems in Dietetics	3
BCHM461	Biochemistry I	3
BCHM462	Biochemistry II	3
BMGT364	Management and Organization Theory	3
BSCI330	Cell Biology and Physiology	4
BSCI440	Mammalian Physiology	4
EDMS451 or BIOM301	Intro to Educational Statistics, or Biometrics	3
PSYC100 (SB)	Introduction to Psychology	3
SOCY100 (SB)	Introduction to Sociology	3
COMM200 (HL/HA/HO)	Critical Thinking and Speaking	3
Elective		3
Restricted Elective	*See list below	3
NFSC421	Food Chemistry	3
NFSC430	Food Microbiology	3

*NFSC410, NFSC425, NFSC450, BMGT220, BSCI222, BSCI422, COMM200, EDCP310, KNES360, BMGT360, AREC350, ENST333, AREC250, or alternate course by approval of advisor

Additional course requirements for option in Food Science (66 cr):

Course		Credits
NFSC398	Food Science Seminar	1
NFSC412	Food Processing Technology	4
NFSC414	Mechanics of Food Processing	4
NFSC421	Food Chemistry lecture	3
NFSC422	Food Product Research & Development	3
NFSC423	Food Chemistry lab	3
NFSC430	Food Microbiology lecture	3
NFSC431	Food Quality Control	3

NFSC434	Food Microbiology lab	3
NFSC450	Food and Nutrient Analysis	3
BCHM463	Biochemistry of Physiology	3
BIOM301	Introduction to Biometrics	3
COMM200	Critical Thinking and Speaking	3
MATH120	Elementary Calculus I	3
MATH121	Elementary Calculus II	3
PHYS121	Fundamental of Physics I	4
	General Education: Behavioral and Social Sciences	6
Elective		8
Restricted Elective	*See list below	3

*NFSC410, NFSC425, NFSC450, BMGT220, BSCI222, BSCI422, COMM200, EDCP310, KNES360, BMGT360, BMGT364, AREC350, ENST333, AREC250, or alternate course by approval of advisor

Additional course requirements for option in Nutritional Science (66cr):

Course		Credits
NFSC315	Nutrition During the Life Cycle	3
NFSC421	Food Chemistry lecture	3
NFSC440	Advanced Human Nutrition	4
NFSC450	Food and Nutrient Analysis	3
BCHM461	Biochemistry I	3
BCHM462	Biochemistry II	3
BCHM464	Biochemistry lab	2
BCHM465	Biochemistry III	3
BIOM301	Introduction to Biometrics	3
BSCI222	Principles of Genetics	4
BSCI330	Cell Biology and Physiology	4
BSCI440	Mammalian Physiology	4
MATH120	Elementary Calculus I	3
PHYS121	Fundamentals of Physics I	4
	General Education	6
	General Education	3
	General Education	3

Elective		5
Restricted Elective	*See list below	3

*NFSC380, NFSC410, NFSC460, NFSC470, BSCI410, BSCI422, BSCI430, BSCI447, or alternate course by approval of advisor

Advising

Department advising is mandatory each semester. When planning a course of study, students must consult the Undergraduate Catalog for the year they entered the program and also see an appropriate departmental advisor. Information on advising may be obtained by calling the department office, 301-405-8980.

Student Societies and Professional Organizations

The NFSC Department has two active undergraduate clubs: the Food and Nutrition (FAN) club and the Food Science club, which sponsor outreach activities and speakers on career-related topics, and participate in a variety of social activities. Call 301-405-8980 for more information.

Operations Management and Business Analytics

For information, see Decision, Operations and Information Technologies in Chapter 7.

Other For-Credit Programs

Air Force Reserve Officer Training Corps Program (AFROTC)

0121 Reckord Armory, 301-314-3242
www.afrotc.umd.edu
afrotcdet330@umd.edu

Director: Colonel David Morrissey

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate degree.

For information, see AFROTC under the Office of Undergraduate Studies section in Chapter 6.

Army Reserve Officer Training Corps Program (ROTC)

2100 Reckord Armory, 301-314-9939
www.armyrotc.umd.edu
armyrotc@umd.edu

The Army Reserve Officer Training Corps offers students the opportunity to earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

For more information, see office of Undergraduate Studies section in Chapter 6.

College Park Scholars Program (CPSP)

1125 Cumberland Hall, 301-314-CPSP (2777)
www.scholars.umd.edu
askcpscholars@umd.edu

Executive Director: Marilee Lindemann, PhD

College Park Scholars is a class of 12 interdisciplinary, two-year living and learning programs (www.scholars.umd.edu/programs) in which academically and creatively talented freshmen and sophomores explore interests that enhance or complement their academic major. Participation in College Park Scholars provides the interpersonal benefits of a small college paired with the intellectual advantages of a major research university.

Admission to College Park Scholars is selective and by invitation. For more information, see College Park Scholars in the Office of Undergraduate Studies section of Chapter 6.

Education Abroad

1118 H.J. Patterson Hall, 301-314-7746
www.umd.edu/studyabroad
educationabroad@umd.edu

Dr. Ross Lewin

Through Education Abroad (EA), UMD students participate in academically rigorous overseas programs designed to broaden and enrich their major fields of study, deepen their understanding of other languages and cultures, and strengthen their ability to compete for successful careers in today's global economy. These programs provide coursework in a wide range of disciplines so that participants can study abroad for a semester or academic year and still complete their degrees on schedule. A growing number of EA programs combine the concepts of global citizenship, civic engagement, and entrepreneurship by engaging students in innovative projects designed to address health, economic, and environmental issues in the communities that host them during their overseas studies.

EA collaborates with UMD faculty and staff as well as international institutions and affiliated organizations to support more than 400 international programs in over 65 countries and to integrate overseas coursework into campus curricula. Professional advisors guide students in the selection of suitable programs and the arrangement of academic credit, assist with applications for financial aid, conduct pre-departure orientations, and provide on-call support to participants

overseas. Recognizing that substantive international experience is a crucial part of any undergraduate education, EA continually seeks to enable every UMD student to study abroad regardless of his or her major field of study or financial profile. EA is especially attentive to the diverse needs of the UMD campus community and is committed to developing and delivering programs and resources that facilitate access for and representation of diverse identities.

Study Abroad Process

Students interested in overseas studies should ideally visit EA one year before actually submitting an application in order to explore program options and learn more about the next steps in arranging academic credit, completing pre-requisites, and obtaining financial aid for their intended programs. When a student is prepared to begin an application, he or she should arrange to meet with an advisor by making an appointment through the on-line system at: www.umd.edu/studyabroad.

Types of Study Abroad Programs

Exchange programs: Exchange programs allow UMD students to study for a semester or year at leading universities throughout the world while paying little more than their regular UMD tuition, travel, and overseas living expenses. In exchange for each outgoing student, one from the overseas host university studies at the College Park campus for an equivalent period. While some exchange programs require foreign language proficiency, many are open to students who speak only English. These programs offer UMD students an outstanding opportunity to develop lasting bonds with local students. UMD students earn transfer credit applied to their UMD degree on all exchange programs.

Maryland Semester (Maryland-in), Maryland Short Term & Freshmen Abroad programs: EA directly sponsors and administers a wide array of semester and short term opportunities in partnership with UMD academic departments. These options allow students to receive UMD resident credit. These include semester programs in Barcelona, Beijing, Berlin, Buenos Aires, Copenhagen, Florence, Perugia, Nice. Rome and Seville as well as more than 75 short term courses taught by Maryland faculty during the summer, winter term, and spring break in locations ranging from Morocco to Brazil. This also includes Terrapin Takeoff and Destination programs for spring admitted freshmen. In addition to high-quality instruction, UMD programs offer cultural activities, internships, and service opportunities to help students maximize their engagement with the host-country culture.

Approved Programs and Affiliate Programs: EA administers a wide range of programs in collaboration with vetted study abroad providers and universities, including The Council on International Educational Exchange (CIEE), the Institute for the International Education of Students (IES), The Education Abroad Network (TEAN), American Councils (ACTR), and the University Studies Abroad Consortium (USAC).

Non-Approved programs: UMD students who wish to study abroad through other institutions must petition to do so. The first step in this process is to speak with an EA advisor. Petitioners must demonstrate a compelling academic reason to participate in a non-approved program and

that the program in question meets the same standards required of approved programs. EA strongly encourages students to explore its extensive list of affiliated and approved programs before beginning the petition process.

More information and applications are available at the EA website: www.umd.edu/studyabroad.

Hearing and Speech in the Evening (HESPIE)

0132 Main Administration Building, 301-405-7762
oes.umd.edu
oes@umd.edu

Hearing and Speech in the Evening (HESPIE) is a non-degree, post-baccalaureate program that provides a strong background for graduate training in Speech—Language Pathology, Audiology, and in Hearing, Language, or Speech Sciences. Upon program completion, students should acquire the knowledge and skills to demonstrate knowledge of basic communication processes as well as knowledge of speech, language, and hearing disorders and differences, including etiologies and characteristics, prevention, assessment, and intervention.

Honors College

Anne Arundel Hall, 301-405-6771
www.honors.umd.edu
honors@umd.edu

Executive Director: Dr. Susan Dwyer

The Honors College, a vibrant and diverse intellectual community on the doorstep of the nation's capital, engages the University of Maryland's highest achieving undergraduates by providing academic challenges and boundless opportunities for discovery, setting them on paths to extraordinary futures. Small classes and outstanding teachers encourage discussion and foster innovative thinking across academic disciplines. Honors students have exclusive access to Honors living-learning program courses, Honors seminars, and Honors versions of courses offered by the academic departments on campus.

For more information, see Office of Undergraduate Studies in Chapter 6.

Naval Reserve Officer Training Corps Program (Naval ROTC)

0110 Reckord Armory, 301-314-6289
http://navalrotc.umd.edu/
navalrotc@umd.edu

Director: Captain Troy Mong

The Naval Reserve Officers Training Corps (NROTC) Program was established to educate and train qualified young men and women for service as commissioned officers in the US Navy (unrestricted line), or in the Marine Corps while completing their undergraduate degree.

For information, see NROTC under the Office of Undergraduate Studies section in Chapter 6.

Science in the Evening (SIE)

0132 Main Administration Building, 301-405-7762
oes.umd.edu
oes@umd.edu

Science in the Evening (SIE) is a non-degree, post-baccalaureate program that provides the basic foundational curriculum in biology, chemistry, and physics needed to pursue a life sciences career. SIE provides an excellent science education for students who have little or no background in science. In SIE, students access the necessary coursework to prepare for science-related professional schools, biotechnology/biosciences graduate programs, or other health profession tracks.

Persian Studies (PERS)

College of Arts and Humanities
3215 JimÃ©nez Hall, 301-405-1891
www.persian.umd.edu
Director: F. Keshavarz-Karamustafa, Professor
Professors: A. Karimi-Hakkak
Associate Professors: A. Abasi
Lecturers: S. Moinfar
Assistant Clinical Professor: N. Akbari-Saneh, M. Bazargan
Visiting Faculty: I. Meftahi

The Major

The 36 credit major in Persian Studies (12 courses) will provide students with a solid background in linguistic, literary, and cultural aspects of the study of Persian. This study will be inclusive of the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students work toward competence in speaking, reading, writing, and listening, in addition to studying the evolution of Iranian and Persianate cultures in their diverse perspectives, practices, and products. They will become conversant with the contemporary political and daily life of Persian-speaking peoples, with cultural comparison implicit throughout their 4 years.

The B.A. in Persian Studies (PERS) prepares students for a range of professional opportunities, including careers in government, education, the arts, business, and communication. Many undergraduates will choose to double major or do a double degree in Persian and another subject, including arts and humanities majors, business, computer science, engineering, and journalism.

Program Learning Outcomes

- LANGUAGE ABILITY: Students develop and improve their language ability in speaking, listening, reading, and writing in Modern Standard Persian. Students demonstrate level-appropriate oral and written skills as assessed by Oral Proficiency Interviews (OPIs) and the University of Maryland Test of Persian Proficiency Test©. At graduation this is defined as INTERMEDIATE HIGH to ADVANCED levels proficiency across skills.
- CULTURAL LITERACY: Students develop and improve their ability to function in relevant cultural, religious, and linguistic contexts and demonstrate cultural awareness through identifying and articulating cultural values and practices, similarities and differences, and successfully handling situations that require intercultural negotiation of meaning.
- ANALYTICAL AND ARGUMENTATIVE SKILLS: Students develop and improve their abilities to analyze various texts (including written, audio, visual) representing different genres and develop and improve their abilities in critical analysis. Students hone their critical thinking and discursive skills by demonstrating the ability to distinguish between opinions and facts and advancing their own reasoned arguments delivered in written or oral format.
- FACTUAL KNOWLEDGE: Students demonstrate curriculum-based familiarity with key figures, texts and events within the social, cultural, and historical contexts of regions of the world where Persian has a significant linguistic or cultural presence.
- ACADEMIC SKILLS: Students are able to produce and present source-based academic texts (oral and written) in Persian and/or English, display an awareness of various purposes and audiences, and demonstrate analytical skills as described under 3 above.

Placement in Courses

Please see: http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Courses Required for Majors
Note: In cases where a student has equivalent knowledge, required language-focus credits are replaced in consultation with undergraduate advisor. This may include courses in Arabic for those students who intend to study Persian literature in Persian, as Arabic is integral to the history of Persian Literature.

Requirements for the Major
All students planning to pursue the major in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for placement, oversight, and record keeping. A grade of "C-" or better is required in all courses.

A. Prerequisites - 8 credits
Note: There are no prerequisites for students with equivalent knowledge.

PERS101	Elementary Persian I	4 credits
PERS102	Elementary Persian II	4 credits

B. CORE Sequence - 18 credits
Note: All prerequisites imply "or equivalent knowledge."

PERS201	Intermediate Persian I (prereq 102)
PERS211	Intermediate Conversation (co-req 201)
PERS202	Intermediate Persian II (prereq 201/211)
PERS212	Intermediate Reading (co-req 202)
PERS301	Advanced Persian I (pre-req 202/212)
PERS302	Advanced Persian II (prereq 301)

C. 3xx or 4xx level Electives in Persian - 6 credits

PERS311	Persian Media (pre-coreq 301)
PERS312	Iranian Culture (prereq 301)
PERS401	Persian Composition (prereq 302)
PERS402	Persian Translation (prereq 302)
PERS411	Readings in Modern Iranian History and Culture (prereq 302)
PERS412	Language and Identity (prereq 302)
PERS452	Modern Persian Literature: A Survey (prereq 302)
PERS453	Classical Persian Literature: A Survey (prereq 302)
PERS498	Special Topics in Persian Studies
PERS499	Special Topics in Persian Literature

D. Electives in English - up to 12 credits; no prerequisites

PERS250	Contemporary Iranian Arts
PERS251	Modern Iran
PERS283	Iranian Cinema
PERS353	Iranian Life in Literature and Film
PERS371	Introduction to Persian Literature in Translation
PERS372	The History of Persian
PERS441	Islam in Iran

Note: Courses in Middle Eastern Studies taught in English outside the Department may be substituted on prior approval of the Undergraduate Advisor.

E. Supporting Area - 9 credits
In addition to the required 36 credits, students must take 9 3xx or 4xx level credits in a single area of study outside Persian Studies as a complement to their major. Their plan should be

cleared with the undergraduate advisor upon declaring a major. Double majors and minors fulfill this requirement.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Requirements for the Minor

Persian Studies

School of Languages, Literatures, and Cultures
www.persian.umd.edu

This 15-credit minor will provide students with a background in linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward linguistic competence in speaking, reading, writing, and listening. Additionally, students will be introduced to Iranian culture in its diverse perspectives, practices, and products. The Minor in Persian Studies complements a range of professions, including careers in education, engineering, government, journalism, the arts, business, and communication.

- A minimum of 9 credits must be earned through courses taught in Persian.
- Up to 6 may be earned from PERS courses taught in English.
- A minimum of 9 credits must be at the 3xx or 4xx level.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.

No courses applied to the minor may count toward another minor. All students planning to pursue the Minor in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for oversight and record keeping.

Prerequisites (14 credits):
PERS101 Elementary Persian I (4 credits)
PERS102 Elementary Persian II (4 credits)
PERS201 Intermediate Persian I
PERS211 Intermediate Conversation

There are no prerequisites for students with equivalent knowledge.

Course requirements:
A. Courses taught in Persian (at least 9 credits); All prerequisites imply "or equivalent knowledge."

PERS202 Intermediate Persian II (prereq 201/211)
PERS301 Advanced Persian I (prereq 202/212)
PERS302 Advanced Persian II (prereq 301)
PERS452 Modern Persian Literature: A Survey (prereq 302)
PERS453 Classical Persian Literature: A Survey (prereq: 6 credits Arabic)

B. Persian Studies Courses Taught in English (up to 6 credits; no prerequisites)

PERS251 Modern Iran (SH/D)
PERS283 Iranian Cinema (HA-HO/D)
PERS353 Iranian Life in Literature and Film (D)
PERS371 Introduction to Persian Literature in Translation (D)
PERS441 Islam in Iran (D)

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Dr. Ali Abasi aabasi@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices,

participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

PHILOSOPHY (PHIL)

College of Arts and Humanities
1128 Skinner Building, 301-405-5689
www.philosophy.umd.edu
lgilman@umd.edu
Chair: C. Morris (Chair)
Professors: J. Bub (Distinguished University Professor), P. Carruthers, L. Darden (Distinguished Scholar Teacher), P. Greenspan, J. Horty, S. Kerstein, J. Levinson (Distinguished University Professor), C. Manekin, P. Pietroski (Distinguished Scholar Teacher), G. Rey, A. Stairs (Associate Chair)
Associate Professors: S. Dwyer, D. Moller, R. Singpurwalla, A. Williams
Assistant Professors: A. Lyon, E. Pacuit
Lecturers: J. Maffie (Senior Lecturer)
Affiliate Professors: M. Frisch, J. Segal (Res Assoc)
Adjunct Professors: R. Rynasiewicz
Adjunct Associate Professors: J. Mattingly, M. Silberstein
Professors Emeriti: J. Brown, C. Cherniak, R. Martin, S. Odell, F. Suppe

The Major

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

Program Objectives

All philosophy programs aim to: (1) equip students with an understanding of a range of philosophers and philosophical problems, while encouraging as deep a critical engagement with those philosophers and problems as is feasible in the time available; (2) promote respect for the norms of: clarity; careful analysis; critical reflection; rational argument; sympathetic interpretation and understanding; and impartial pursuit of truth; (3) promote independence of

thought and a critical and analytical approach, not only to theories and concepts, but also to the assumptions on which they are based; (4) equip students with the core skills involved in: careful reading, comprehension and compression of textual material; clear thinking; sound argumentation; and the clear and well-organized expression of ideas; (5) provide excellent teaching which is informed and invigorated by the research activities of faculty; (6) facilitate an awareness of the application of philosophical thought to other academic disciplines or to matters of public interest, encouraging students to apply philosophical skills more widely where appropriate.

Program Learning Outcomes

By the end of the program of study:

1. Students should be competent in formal techniques, including, but not limited to, formal logic.
2. Students should be able to present critically, yet sympathetically, philosophical views that differ from their own.
3. Students should be able to write clearly and in an organized fashion (appropriate to the content and context, and appropriate for a graduating major).
4. Students should be able to make out a reasoned case in support of their views (appropriate to the content and context, and appropriate for a graduating major).

Requirements for the Major

The requirements for a major in Philosophy are as follows:

A total of at least 36 hours (twelve courses) in philosophy, not counting internship courses (PHIL 386). For a course to count toward a student's major, the grade in the course must be "C-" or above. For students who matriculated in September 2012 or later, the average of all grades counted toward the major must be 2.0 or greater. Therefore, grades of "C-" will have to be balanced with higher grades. (C- counts as 1.7 toward the GPA.)

The twelve philosophy courses must be distributed as follows:

- at least six courses numbered 3xx or above, of which at least two must be numbered 4xx or above
- at least one course in logic at any level
- at least two courses numbered 2xx or above in the history of pre-twentieth century philosophy
- at least two courses numbered 2xx or above in value theory (including aesthetics and political philosophy as well as ethics)
- at least two courses numbered 2xx or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge)

Supporting Courses **15 credits**

Fifteen hours in a supporting area; the courses do not all have to be in the same department, but they should reflect a coherent program of study. The supporting area must be chosen in consultation with a departmental advisor. For further information, students should consult the undergraduate handbook on the philosophy department's website.

Requirements for the Minor

Requirements for the Minor

A total of at least 18 hours (six courses, at least three of which must be at least 3xx-level or above) in philosophy, not counting internship courses (PHIL 386). For a course to count toward a student's minor, the grade in the course must be "C-" or above. For students who matriculated in September 2012 or later, the average of all grades counted toward the minor must be 2.0 or greater. Therefore, grades of "C-" will have to be balanced with higher grades. ("C-" counts as 1.7 toward the GPA.) Candidates for the minor must satisfy the following distribution:

- at least one course numbered 2xx or above in the history of pre-twentieth century philosophy
- at least one course numbered 2xx or above in value theory (including aesthetics and political philosophy as well as ethics)
- at least one course numbered 2xx or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge)

Advising

Philosophy Majors must be advised each semester before registration. philadv@umd.edu

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Honors Program

The Philosophy Honors Program allows exceptional students the opportunity to work closely with a member of the Philosophy faculty on a project, typically a 30-40 page philosophical paper (i.e., “Honors Thesis”), during the final two semesters of his/her undergraduate career. The two semesters of independent study with the faculty advisor culminate in the student presenting and defending the Honors Thesis before a committee consisting of 2-3 faculty members in addition to the advisor.

Successful students will graduate with Honors in Philosophy. Requirements and Procedures

- A prospective honors student should normally have a cumulative GPA of 3.5 and a GPA of 3.75 in philosophy classes with no grade below a "C" in any philosophy course.
    - A prospective honors student should find a willing faculty advisor in the spring semester before the senior year.*
    - The student must present a proposal to the prospective advisor at the end of the spring semester.*
    - The proposal will typically include a list of proposed readings, a clear and appropriately narrow topic, and a projected position to be defended in the Honors Thesis.
    - This proposal will then be submitted to the Undergraduate Affairs Committee for approval.
- If the proposal is approved, the student will enroll in 498F (3 credits) the following semester and the student and advisor will agree on a schedule for meetings and the work expected by the end of the semester.
- At the end of the semester, the advisor will evaluate the student's progress and will decide whether the student should continue work on the Honors Thesis for another semester.
- If, at the end of the first semester, the advisor judges that the project should not continue, the student will be given a grade for 498F but will not enroll in 498G in the subsequent semester and will not receive an Honors degree.
- If, at the end of the first semester, the advisor thinks the project should continue, the student will enroll in 498G (3 credits) and the student and advisor will agree on a schedule of meetings and a timeline for completion of the Honors Thesis.
- The student, in consultation with the advisor, will arrange an examining committee of at least 2 faculty members in addition to the advisor. The student will present and defend the Honors Thesis before this examining committee. The faculty advisor determines the grade for 498G but the committee determines whether the student graduates with Honors.

*or, for students graduating in December, the semester prior to the student's next to last semester

Student Societies and Professional Organizations

The Philosophy Club holds weekly meetings during the semester to discuss philosophical topics of interest to members.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The W.E. Schlaretzki Prize is given to the most outstanding graduating senior each year. The Joseph and Beth Duckett Scholarship is given to the most outstanding junior.

PHYSICS (PHYS)

College of Computer, Mathematical, & Natural Sciences
1120 John S. Toll Physics Building, 301-405-5979
umdphysics.umd.edu
ugrad@physics.umd.edu
Chair: S. Rolston (Prof)
Professors: S. Anlage (Dist Scholar-Teacher), T. Antonsen, I. Appelbaum, A. Baden, P. Bedaque, E. Beise (Dist Scholar-Teacher), A. Buonanno (College Park Prof), Z. Chacko, T. Cohen (Dist Scholar-Teacher), S. DasSarma (Dist Univ Prof, Dist Faculty Research Fellow), W. Dorland (Dist Scholar-Teacher), J. Drake (Dist Univ Prof), T. Einstein, S. Eno (Dist Scholar-Teacher), V. Galitski, S. Gates (Regents Prof, Dist Univ Prof, Dist Scholar-Teacher, Toll Chair), J. Goodman (Dist Univ Prof, Dist Scholar-Teacher), R. Greene, N. Hadley, A. Hassam, K. Hoffman (Assoc Chair), B. Hu, T. Jacobson (Dist Scholar-Teacher), C. Jarzynski (Dist Univ Prof), A. Jawahery (Dist Univ Prof, Zorn Chair), X. Ji (Dist Univ Prof), D. Lathrop, C. Lobb (Dist Scholar-Teacher), W. Losert, J. Mather (College Park Prof, Nobel Laureate), H. Milchberg (Dist Scholar-Teacher), R. Mohapatra (Dist Univ Prof, Dist Scholar-Teacher), C. Monroe (Dist Univ Prof, Zorn Chair), L. Orozco, E. Ott (Dist Univ Prof), J. Paglione, K. Papadopoulos, W. Phillips (Dist Univ Prof, Nobel Laureate), E. Redish (Dist Scholar-Teacher), R. Roy, E. Seo, A. Skuja, P. Sprangle, G. Sullivan, R. Sundrum (Dist Univ Prof, Toll Chair), F. Wellstood, E. Williams (Dist Univ Prof, Dist Faculty Research Fellow), V. Yakovenko
Associate Professors: K. Agashe, M. Girvan, C. Hall, K. Kim, M. Ouyang, D. Roberts, P. Shawhan (Assoc Chair), B. Swingle, A. Upadhyaya
Assistant Professors: M. Barkeshli, A. Belloni, V. Manucharyan, J. McKinney, J. Sau, J. Williams
Senior Lecturer: D. Buehrle
Lecturers: S. Picozzi
Affiliate Professors: W. Hill, G. Oehrlein, R. Phaneuf, I. Takeuchi, J. Weeks (Dist University Professor)
Affiliate Associate Professors: J. Aranda-Espinoza, A. Childs, J. Cumings, A. Elby, M. Goupell, E. Waks
Affiliate Assistant Professors: M. Hafezi, M. Leite, Y. Mo, J. Munday, E. Rodriguez
Adjunct Professors: A. Ali, G. Bryant, C. Clark, P. Julienne, P. Lett, J. Lynn, A. Migdall, S. Moseley, J. Nico, J. Porto, G. Solomon, I. Spielman, E. Tiesinga, R. Tycko, C. Williams
Adjunct Associate Professors: G. Campbell, J. McEnery, H. Mumm, K. Osborn, B. Palmer, J. Taylor
Adjunct Assistant Professors: N. Butch, A. Gorshkov, Q. Quraishi, H. Shroff, K. Tanner
Research Scientist: E. Blaufuss, F. Ipavich, B. Kane, R. Kellogg, M. Moody, A. Smith
Associate Research Scientist: H. Breuer, A. Sushkov
Assistant Research Scientist: M. Cetina, Z. Gong, K. Hudek, G. Jenkins, N. Klimov, P. Li, K. Nakahara, Y. Pan, S. Polyakov, S. Saha, R. Vispute

Assistant Research Professor: A. Gupta, S. Jabeen, C. Turpen
Professors Emeriti: J. Anderson, S. Bhagat, D. Boyd, D. Brill, G. C. Chang, C. Chang, N. Chant, D. Currie, A. DeSilva, J. Dorfman, A. Dragt (Sr Res Sci), H. Drew (Res Prof), R. Ellis, D. Falk, M. Fisher (Dist Univ Prof Emeritus), A. Glick, G. Gloeckler (Dist Univ Prof Emeritus), G. Goldenbaum, O. Greenberg (Res Prof), H. Griem, J. Griffin, D. Hamilton (Res Prof), C. Kacser (Assoc Prof Emeritus), Y. Kim, V. Korenman, D. Langenberg (Chancellor Emeritus), J. Layman, C. Liu (Res Prof), G. Mason, C. Misner, H. Paik (Res Prof), R. Park, J. Pati, J. Richard, P. Roos, R. Sagdeev (Dist Univ Prof Emeritus), J. Sucher, S. Wallace (Res Prof), J. Yorke (Dist Univ Prof Emeritus, Res Prof)
Visiting Faculty: A. Alexandru, C. Alvarez Ochoa, J. Amini, P. Barbara, B. Behr, D. Berley, S. Bludman, J. Britton, D. Brock, A. Chernovitz, B. Conrad, W. Cullen, K. Dienes, C. Doran, G. Dudnikova, M. Edwards, R. Ellsworth, T. Ferbel, K. Gebbie, B. Gelman, W. Golding, E. Grauges Pous, T. Hubsch, E. Hwang, J. Isenberg, V. Jacobs, K. Jones, J. Kim, J. Kogut, P. Kunz, G. Lubkin, B. Mong, S. Nussinov, V. Rodgers, I. Rothstein, M. Safronova, S. Sahin Bal, L. Schmid, R. Sinclair, R. Sinclair, L. Sollitt, T. Stanescu, J. Starr, J. Su, J. Su, M. Sullivan, S. Tonwar (Lecturer), T. Vachaspati, S. Waldman, J. White, L. Yang, T. Yildirim, G. Yodh

The Major

Physics is an exciting and rewarding field of study. Physicists make important discoveries that often change the way we live by examining the way things work, and there are still many discoveries to be made.

At Maryland, physics majors benefit from small class-sizes, outstanding teachers and very talented classmates. However, we believe that the most important physics education occurs outside the classroom, and we encourage all of our majors to participate in cutting-edge research with our internationally recognized faculty. Through participation in research projects, our students learn what it takes to conduct world-class scientific research. Whether students decide to continue to study physics in graduate school or work in fields such as engineering, software development, law, business or education, a bachelor's degree in physics from Maryland provides an excellent foundation.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the degree program, students should have acquired the following knowledge and skills:

1. A thorough knowledge of the core areas of physics, including mechanics, electricity and magnetism, thermal physics, and quantum mechanics at a level compatible with admission to graduate programs in physics at peer institutions.
2. The ability to analyze and interpret quantitative results, both in the core areas of physics and in complex problems that cross multiple core areas.
3. An ability to assess and solve unfamiliar problems in physics using the knowledge and skills acquired.

4. The ability to use contemporary experimental apparatus common to the study of physical phenomena, and have the ability to acquire, analyze and interpret scientific data.
5. The ability to communicate scientific results effectively, both verbally and in writing.

Requirements for the Major

Courses required for Physics Major:

		Credits
	Lower-level courses for all areas of concentration:	
PHYS165*	Introduction to Programming for the Physical Sciences	3
PHYS171	Introductory Physics: Mechanics	3
PHYS174	Physics Laboratory Introduction	1
PHYS272	Introductory Physics: Fields	3
PHYS273	Introductory Physics: Waves	3
PHYS274	Mathematical Methods for Physics I	3
PHYS275	Experimental Physics I: Mechanics, Heat, and Fields	2
PHYS276	Experimental Physics II: Electricity and Magnetism	2
MATH140	Calculus I	4
MATH141	Calculus II	4
MATH241	Calculus III	4
	Upper-level courses for Professional Physics area of concentration:	
PHYS371	Modern Physics	3
PHYS373	Mathematical Methods for Physics II	3
PHYS375	Experimental Physics III: EM Waves, Optics, and Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introduction to Statistical Mechanics	3
PHYS405**	Advanced Experiments	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS4xx**	Advanced Physics Elective	3
PHYS4xy	Advanced Physics Elective	3

*Students with prior programming experience may take an upper-level, computational physics course instead of PHYS165. This advanced course may be used for an Advanced Physics Elective as well.

**PHYS405 in the Professional Physics area of concentration may be replaced by the following two course sequence:

PHYS499A Special Problems in Physics 1-6

PHYS407 Professional Physics Experimental Research 3

*** Students completing a second major from a CMNS or Engineering department may use an upper-level course from that program in place of one of the Advanced Physics Electives.

	Upper-level and supporting courses for Education Physics area of concentration:	
EDPS301	Foundations of Education	3
EDHD413	Adolescent Development	3
EDHD426	Cognitive and Motivational Basis of Reading: Reading in Content Areas	
EDCI463	Teaching Reading in Content Area II	3
PHYS374	Intermediate Theoretical Methods	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS401	Quantum Physics I	4
PHYS375	Experimental Physics III: Electromagnetic Waves, Optics	3

In the Education Physics area of concentration: PHYS401 may be replaced by PHYS420 - Principles of Modern Physics (3). PHYS375 may be replaced by one additional non-seminar 400-level approved Physics course of 3-4 credits.

Students who are considering pursuing the Education Physics area of concentration are encouraged to enroll in EDCI280-Introduction to Teaching, for a survey of education and teaching. The Education Physics area of concentration is designed to accommodate students obtaining a teaching certificate through the College of Education. However, completing all the courses in the Education Physics area of concentration does not in itself satisfy all requirements for obtaining a teaching certificate. Students pursuing the Education Physics area of concentration who want to also obtain a teaching certificate in secondary education must first apply and be admitted to the Secondary Education Program in the College of Education and then complete additional courses in that program.

Other Requirements for the Major

Students must complete all courses required for the major with a grade of "C-" or higher.

Requirements for the Minor

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major. The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields (PHYS262 or PHYS272) and waves (PHYS263 or PHYS273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS174, PHYS261, or PHYS271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from the list below.

- Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor.

- All courses must be completed with a grade of "C-" or better to be counted towards the minor.

- No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits.

- Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

		Credits
	Courses required for the minor	**7**
	One from:	
PHYS174	Physics Laboratory Introduction	1
PHYS261	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory	1
PHYS271	General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory	1
	One from:	
PHYS272	Introductory Physics: Fields	3
PHYS260	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism	3
	One from:	
PHYS273	Introductory Physics: Waves	3
PHYS270	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3
	Three from the following:	*9-12*
PHYS373	Mathematical Methods for Physics II	3
PHYS375	Experimental Physics III: EM Waves, Optics & Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introductory Statistical Thermodynamics	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS465	Modern Optics	3
PHYS474	Computational Physics	3

Prerequisites
MATH140 (4 credits), MATH141 (4 credits), MATH241 (4 credits), MATH240 (4 credits), MATH246 (3 credits), and Physics161 (or Physics171) (3 credits) are prerequisites for some of the courses in this program.

Contact
Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department:

1120F John S. Toll Physics Building; 301-405-5979
email: phys-ugradinfo@physics.umd.edu

Note: At the beginning of the semester in which graduation is intended, a student should make an appointment with the Physics Department's Undergraduate Advisor to fill out the appropriate paperwork.

Advising

Advising for undergraduates is available throughout the year in Room 1120 PHY. For early registration, advising is mandatory; students should check Testudo for their early registration date and email ugrad@physics.umd.edu for information about advising appointments. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

Honors Program

Departmental Honors in Physics

The Departmental Honors Program in Physics was established to recognize and encourage independent and creative scholarship in physics by providing superior undergraduate physics majors the opportunity for advanced and intensive study. The central component of departmental honors in physics is participation in undergraduate research. To earn high honors in physics, students must produce and defend an honors thesis/document based on their own research. The committee's decision whether to award high honors will be based on the quality of the thesis and defense. To earn honors in physics, the student must pass an oral exam probing the depth of their understanding of physics from their courses and research involvement or complete an approved graduate level PHYS course with a grade of B or higher.

Requirements for Graduation with Departmental Honors in Physics

1. Complete at least three credit hours of a Physics Honors version course.
2. Have earned a 3.00 or higher overall GPA and a 3.30 or higher GPA for all physics major required courses at graduation time.
3. Complete one of the following research courses PHYS 386 (Physics experimental Learning), PHYS 389 (Undergraduate Thesis Research), PHYS 399 or PHYS 499 (Independent Study).
4. For High Honors, students must complete a research project with a Physics faculty member and defend a senior thesis or paper based on their original research. A student's defense committee should include the following people: the student's research mentor, the chair of the Physics Honors Program, and an additional Physics faculty member.
5. For "regular" Honors, students must either pass an oral exam given by a committee of at least two Physics faculty members or complete an approved, graduate level PHYS course with a grade of B or higher.

Note: Students who do not meet the criteria in items 1) and 2) above may submit an appeal to the Physics Honors Committee. The Physics Honors Committee may use other considerations (instructor evaluations, research activity, etc.) to award the Honors citation. Students who do not meet the criteria and are not awarded a departmental honors citation will not receive any negative record regarding the Physics Honors Program on any official document.

Student Societies and Professional Organizations

Society of Physics Students (SPS); Sigma Pi Sigma

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu. Departmental scholarships for undergraduates in Physics include the following:

Angelo Bardasis Memorial Scholarship

Joseph Helfand Memorial Scholarship in Physics

Professor William M. MacDonald Physics Scholarship

Physics PALS Scholarship

University of Maryland Department of Physics NSF Scholarships in Science, Technology, Engineering and Mathematics

Awards and Recognition

Jerry B. Marion Award

IPST Monroe Martin Prize for Undergraduate Research in Physics

Plant Sciences (PLSC)

College of Agriculture and Natural Resources
2139 Plant Sciences Building, 301-405-4359
www.psla.umd.edu/
dcortez@umd.edu
Chair: A. Murphy (Prof & Chair; Acting PLSC Director)
Professors: J. Culver, K. Everts, J. H. Sullivan, J. Lea-Cox, M. Neel, C. Walsh, S. Xiao
Associate Professors: M. Carroll, G. Coleman, R. Kratochvil, S. Micallef, T. Turner, J. Zhu
Assistant Professors: P. Chaverri, L. Johnson, B. Phillips (Asst Clin Prof), Y. Qi (Asst Prof), N.

Rawat (Asst Prof), J. Roberts, B. Schulz, K. Tully
Assistant Research Professor: V. Tiwari (Asst Rsch Prof)

The Major

Plant Sciences combines basic science courses with applied technical classes to prepare students for research, public sector, and industry careers. Students seeking a Plant Sciences degree must complete requirements in one of the following Areas of Concentration: Plant Science (Plant Biology), Horticulture and Crop Production, Landscape Management, Turf and Golf Course Management, or Urban Forestry.

- Plant Science (Plant Biology) is designed to prepare students for graduate or professional schools and/or a career in research. This area provides a strong foundation for postgraduate education and research careers in biotechnology, plant physiology and development, cell biology, molecular biology, plant genetics/genomics, conservation biology, ecology, and plant pathology.
- Horticulture and Crop Production prepares students for managerial positions in greenhouse, nursery, orchard and vegetable crops. Students focus their studies on plant growth and development, and plant pathology.

Management Programs:

- Landscape Management trains students for management positions in the landscape industry. The curriculum combines plant science, design and business management courses enabling graduates to meet the challenges of careers in the green industry.
- Turf and Golf Course Management prepares students to succeed as a turfgrass professional in the golf course or sports turf industry, stressing an interdisciplinary approach to this career.
- Urban Forestry prepares students to manage urban trees and forests and enhance their sustainability. This program stresses tree biology, forest ecology and forest assessment and management tools and prepares students for careers with municipalities or government agencies as well as private industry such as power companies and the tree-care industry.

The Department of Plant Science and Landscape Architecture also offers two additional degrees: the Bachelor of Science (B.S.) in Agricultural Science and Technology (Agronomy) and the Bachelor of Landscape Architecture (BLA). Courses offered may be found under AGST and LARC.

Program Learning Outcomes

- Students will develop technical and knowledge-based skills in the required areas of study.
- Students will use technical and basic learned knowledge to collaborate, solve problems and then articulate conclusions.
- Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.

- Students will connect and build relationships with external groups in the appropriate fields of study.

Requirements for the Major

Requirements for all Areas of Concentration		**Credits**
CHEM131/132	General Chemistry I	4
ENGL101	Introduction to Writing	3
ENGL393	Technical Writing	3
ENST200	Fundamentals of Soil Science	4
MATH113	College Algebra with Applications, **OR**	3
MATH115	Precalculus	
PLSC100	Introduction to Horticulture, **OR**	
PLSC101	Introductory Crop Science	4
PLSC398	Senior Seminar	1
	With the exception of ENGL101 and ENGL393, a grade of "C-" or better is required in the courses above.	

Area B: Horticulture and Crop Production

Requirements		**Credits**
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BSCI337	Biology of Insects	4
CHEM105	Fundamentals of Organic and Biochemistry	3
ENST411	Principles of Soil Fertility	3
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops, **OR**	3
PLSC203	Plants, Genes and Biotechnology, **OR**	
PLSC271	Plant Propagation	
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC420	Principles of Plant Pathology	4
PLSC453	Weed Science	3

Advanced Production Electives (Select four of the following)

BSCI497	Insect Pests of Ornamentals and Turf	4
ENST4xx	Soils Courses (Minimum of two)	6-8
PLSC305	Introduction to Turf Management	3
PLSC432	Greenhouse Crop Production	3
PLSC433	Technology of Fruit and Vegetable Crop Production	4
PLSC452	Principles of Landscape Establishment and Maintenance	3
PLSC456	Nursery Crop Production	3
PLSC474	Physiology of Maturation and Storage of Horticultural Crops	3
PLSC4xx	Crops Courses (Minimum of two)	6-8

Total General Education, PLSC and Horticulture and Crop Production Area		**104-108**
University Electives		**12-16**

Area C: Landscape Management Requirements		**Credits**
AREC250	Elements of Agricultural & Resource Economics, **OR**	3/4
ECON200	Principles of Micro-Economics	
BMGT220	Principles of Accounting I	3
BMGT350	Marketing Principles and Organization	3
BSCI337	Biology of Insects	4
CHEM105	Fundamentals of Organic and Biochemistry	3
LARC140	Graphic Fundamentals Studio	4
LARC160	Introduction to Landscape Architecture	3
PLSC200	Land Surveying	2
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC255	Landscape Design and Implementation	4
PLSC271	Plant Propagation	3
PLSC305	Introduction to Turf Management, **OR**	3
ENST411	Principles of Soil Fertility	
PLSC320	Principles of Site Engineering	4
PLSC321	Landscape Structures and Materials	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC389	Internship	1-3
PLSC420	Principles of Plant Pathology	4
PLSC452	Environmental Horticulture	3

Total General Education, PLSC and Landscape Management Area	**105**
University Electives	**15**

Area D: Plant Science Requirements		**Credits**
BSCI337	Biology of Insects	4
BSCI442	Plant Physiology, **OR**	
PLSC400	Environmental Plant Physiology	3
CHEM231/232	Organic Chemistry I	4
CHEM241/242	Organic Chemistry II	4
MATH140	Calculus I, **OR**	3
MATH120	Elementary Calculus I	
PHYS121	Fundamentals of Physics I	4
PLSC201	Plant Structure and Function	4
PLSC202	Management of Horticultural Crops	4
PLSC203	Plants, Genes and Biotechnology	3
PLSC271	Plant Propagation	3
PLSC399	Special Problems in Plant Science	3

PLSC420	Principles of Plant Pathology	4

Advanced Plant Science Electives (Select one of the following)

PLSC403	Crop Breeding	3
PLSC430	Water and Nutrient Planning for the Nursery & Greenhouse Industry	3
PLSC432	Greenhouse Crop Production	3
PLSC433	Technology of Fruit and Vegetable Production	4
PLSC452	Principles of Landscape Establishment and Maintenance	3
PLSC456	Nursery Crop Production	3
PLSC474	Physiology of Maturation and Storage of Horticultural Crops	3

Advanced Science Electives (Select one of the following)

BCHM261	Elements of Biochemistry, **OR**	4
BSCI461	Biochemistry	
ENST411	Principles of Soil Fertility	3
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	4
PHYS122	Fundamentals of Physics II	3

Total General Education, PLSC and Plant Science Area	101-104
University Electives	16-19

Area E: Turf and Golf Course Management Requirements		**Credits**
BSCI170&171	Principles of Molecular and Cellular Biology and Lab	4
BSCI160&161	Principles of Ecology and Evolution and Lab	4
BSCI337	Biology of Insects	4
CHEM104	Fundamentals of Organic and Biochemistry	3
COMM100	Foundations of Oral Communication, **OR**	
COMM107	Oral Communication: Principles and Practices	3
ENBE237	Design of Irrigation Systems	1
ENST411	Principles of Soil Fertility	3
PHYS117	Introduction to Physics, **OR**	4
PHYS121	Fundamentals of Physics I	
PLSC305	Introduction to Turf Management	3
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC401	Pest Management Strategies for Turfgrass	3
PLSC402	Sports Turf Management	3
PLSC410	Commercial Turf Maintenance and Production	3
PLSC420	Principles of Plant Pathology	4
PLSC453	Weed Science	3

Total General Education, PLSC and Turf and Golf Course Management Area	99
University Electives	21

Area F: Urban Forestry Requirements		**Credits**
AREC240	Introduction to Economics and the Environment	3
BMGT220	Principles of Accounting I	3
BSCI337	Biology of Insects, **OR**	4
BSCI497	Insect Pests of Ornamentals & Turf	4
CHEM105	Fundamentals of Organic and Biochemistry, **OR**	3
CHEM231/232	Organic Chemistry I	3
ENST411	Principles of Soil Fertility	3
LARC160	Introduction to Landscape Architecture	3
PLSC171	Introduction to Urban Ecosystems	3
PLSC201	Plant Structure and Function	4
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	4
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC272	Principles of Arboriculture	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC389	Internship	1-3
PLSC400	Environmental Plant Physiology	3
PLSC420	Principles of Plant Pathology	4
PLSC471	Forest Ecology	3
PLSC472	Capstone - Urban Forest Project Management	3

Suggested general education courses and electives[1]

BIOM301*	Introduction to Biometrics	3
BSCI460	Plant Ecology, **OR**	3
BSCI460/461	(Plant Ecology Lecture and Lab)	5
CHEM241/242*	Organic Chemistry II	4
CHEM271/272*	General Chemistry and Energetics	4
COMM107	Oral Communication: Principles and Practices	3
ENST413	Soil & Water Conservation	3
ENST415	GIS Applications in Soil Science	3
ENST444	Restoration Ecology	3
GEOG201	Geography of Environmental Systems	3
GEOG347	Introduction to Biogeography	3
GVPT170	American Government	3
GVPT273	Introduction to Environmental Politics	3
LARC450	Environmental Resources	3
MATH120*	Elementary Calculus I	3
NRMT460	Principles of Wildlife Management	3
NRMT461	Urban Wildlife Management	3
NRMT489B	Field Experience: Park Management	1
PHYS121*/122*	Fundamentals of Physics I / II, **OR**	8
PHYS141*/142*	Principles of Physics	

PLSC200	Land Surveying	2
PLSC203	Plants, Genes and Biotechnology	3
PLSC320	Principles of Site Engineering	3
PLSC473	Woody Plant Physiology	3
PLSC475	Silviculture	4
SOCY100	Introduction to Sociology	3
SOCY105	Introduction to Contemporary Social Problems	3
SOCY305	Scarcity and Modern Society	3
SPAN223	United States Latino Culture	3
URSP100	Challenge of the Cities	3
URSP320	Planning of the Contemporary City	3
URSP372	Diversity and the City	3

Total General Education, PLSC and Urban Forestry Area	99
University Electives	21

[1] *Note: Courses with an asterisk are suggested electives for students planning on graduate study in Forestry.*

Requirements for the Minor

Minor in Landscape Management

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of "C-" or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC100, *Introduction to Horticulture*, as a prerequisite.

Curriculum:

		Credits
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC305	Introduction to Turf Management	3
PLSC361	Commercial Principles of Landscape Management	3
PLSC452	Environmental Horticulture	3

Select one of the following courses:

AREC240	Introduction to Agriculture and the Environment	4
AREC250	Elements of Agricultural and Resource Economics	3
AREC306	Farm Management	3
BMGT220	Principles of Accounting I	3

Total Credits: A minimum of 18 or 19 credits is required to complete this minor. (Depending on which AREC or BMGT course is chosen)

- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.

- This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.

- Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

Advising

The Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year.

Faculty Advisors:

Concentration	**Faculty Advisor**
Landscape Management	Dennis Nola, dnola@umd.edu
Plant Science	Gary Coleman, gcoleman@umd.edu
Turf & Golf Course Management	Mark Carroll, mcarroll@umd.edu
Urban Forestry	Joseph Sullivan, jsull@umd.edu

See the Coordinator for Undergraduate Studies in 2139 Plant Sciences Building (301-405-4359) for additional information.

Undergraduate Research Experiences

Students have abundant opportunities to conduct research with faculty from this department as well as related programs on campus. Research opportunities are also available at government laboratories such as USDA, NIH, etc.

Internships

Internships with scientists are available at nearby federal and state agencies. Numerous internships also exist and can be readily arranged for students interested in private sector employment.

Student Societies and Professional Organizations

Students from this major as well as any interested students on campus may participate in the Horticulture Club sponsored by the Department of Plant Science and Landscape Architecture.

Scholarships and Financial Assistance

Several scholarships and awards are available to PLSC students. Contact the Associate Dean's office at 301-405-2078 for additional information. The Department also maintains a listing of scholarships. Contact Sharde Davenport in 2102 Plant Sciences, 301-405-6244.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Pre-Health Professions Advising and Programs

1210 H. J. Patterson Hall, 301-405-7805
www.prehealth.umd.edu/
preprof@umd.edu

Director of Health Professions Advising Office: Wendy Loughlin
Advisor: Nick Celedon

The Reed-Yorke Health Professions Advising Office (HPAO), part of the College of Computer, Mathematical, and Natural Sciences, serves University of Maryland students and alumni interested in pursuing careers in medicine, dentistry, or allied health fields.

Advisors and staff in the HPAO provide students with pre-professional planning, including individual and group advising, career preparation workshops, admission information for pre-professional programs, a committee process to support their professional school applications, and much more. Pre-professional program advising provides the academic, and experiential foundations required for entrance into professional schools.

HPAO advising encompasses the fields of medicine, dentistry, optometry, podiatry, and the allied health professions - especially nursing, pharmacy, physical therapy and physician assistant, as well as others. The pre-health professional programs at the University of Maryland are not

degree granting programs. They are recommended programs of study for students interested in each profession.

Students planning to pursue professional programs in medicine, dentistry, optometry, osteopathic medicine or podiatry after graduation from University of Maryland must declare an academic major by 60 credits. Students who are undecided about which academic major they will declare may enter the Letters and Sciences, but must adhere to the University of Maryland requirement that students declare a degree-granting major by the time they reach 60 credits.

Pre-professional students who plan to earn a bachelor's degree should declare an academic major by 60 credits. A pre-professional student who does not declare an academic major will be designated as an undecided student in Letters and Sciences, where they will receive academic advising. Pre-professional students, including those interested in the allied health fields, may receive advising related to admission to professional school requirements through the Health Professions Advising Office, however the HPAO does not serve as a student's assigned academic advising unit.

Students interested in allied health professions can in some cases transfer to such programs before earning a bachelor's degree. Such students may enter Letters and Sciences, where they will receive academic advising.

The University of Maryland participates in an early assurance program with George Washington University School of Medicine. More information can be found at http://www.prehealth.umd.edu/early-assurance-programs

Pre-Dental Hygiene

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Dental Hygiene track prepares students for entrance into a professional curriculum for Dental Hygiene at institutions that offer a Bachelor of Science in Dental Hygiene. Pre-Dental Hygiene is not a Pre-Dental major and is not a degree-granting program at the University of Maryland, College Park. A Baccalaureate degree program for a Bachelor of Science in Dental Hygiene (B.S.-D.H.) follows a 2+2 model. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school program which they will complete after an additional two years.

University of Maryland students also have the option of completing a four-year degree at College Park in a selected major, in addition to completing dental hygiene prerequisites, the 4+2 model. In this case, students will complete degree requirements in their chosen major, as well as the pre-dental hygiene prerequisites for entrance into a professional dental hygiene program. They will then apply for admission into a professional school where they will earn a Bachelor of Science in Dental Hygiene upon successful completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Dental Hygienists Association and the American Dental Association maintain information about individual B.S.-D.H. program prerequisites. See www.adea.org.

Pre-Dentistry

1210 HJ Patterson Hall, 301-405-7805
prehealth.umd.edu
preprof@umd.edu

The pre-professional program for pre-dental students provides advising for students preparing to apply to dental school. The recommendations of American dental schools and the requirements for a baccalaureate degree at the University of Maryland form the basis for the advising.

Four-Year Baccalaureate Program

Pre-dental students at the University of Maryland are encouraged to complete a four-year undergraduate degree, with a diversified curriculum, balancing humanities, social sciences and fine arts courses with science and mathematics courses, prior to entering dental school. Courses in which students work with their hands are also advised. Students in the four-year program must plan an undergraduate experience that satisfies the requirements of their selected major, as well as pre-dental admission requirements. Students should seek pre-dental advising early in order to create an appropriate four-year pre-dental plan. The national association www.adea.org provides current information for applicants.

Students who have completed AP or IB programs and received credit for courses in the sciences that are required for dental school admission are advised to read the AP/IB section of the HPAO website (http://www.prehealth.umd.edu/ab-and-ib-credit) and review individual school websites for their specific policies toward this credit.

Three-year Arts-Dentistry Degree Program

For highly motivated and academically talented students, the University of Maryland, College Park and University of Maryland School of Dentistry offer the three-year Arts-Dentistry Program. This program gives students the opportunity to apply to the University of Maryland School of Dentistry one year early. This accelerated program requires students to complete their dental school admission requirements in three years, as they apply to dental school at the end of the second year and the beginning of their third year. Competitive students must apply and be accepted by the University of Maryland Dental School. Students accepted in the combined arts-dentistry program, receive the B.S. degree (Arts-Dentistry) after satisfactory completion of the first year at the dental school and upon the recommendation of the Dean of the School of Dentistry and approval of the University of Maryland, College Park. Participation in the combined-degree program at the University of Maryland, College Park does not guarantee admission to the University of Maryland School of Dentistry.

The HPAO strongly urges incoming students interested in this combined-degree program to identify their interest and consult with the Pre-Health advisor very early in their academic career. Please visit the website for specific details and instruction. This is a highly competitive program for top students with broad exposure to the dental field and other extracurricular activities.

Pre-Medicine (Allopathic, Osteopathic, Optometry, Podiatry)

1210 HJ Patterson Hall, 301-405-7805
prehealth.umd.edu
preprof@umd.edu

Four-Year Baccalaureate Program

It is recommended that students planning to apply to medical school complete a four-year undergraduate degree prior to entrance into medical school. Students should choose an undergraduate degree program that matches their interests, and should plan how to satisfy their degree requirements and the general education requirements along with the courses in the natural and social sciences required for medical school admission. Students should seek pre-medical advising early in order to create an appropriate four-year academic plan. The HPAO website provides specific information on each of the medical programs. The national associations: AAMC, www.aamc.org and AACOM, aacom.org provide current information for applicants.

Students who have completed AP or IB programs and received credit for courses in the sciences that are required for medical school admission are advised to read the AP/IB section of the HPAO website (http://www.prehealth.umd.edu/ab-and-ib-credit) and review individual school websites for their specific policies toward this credit.

Early Assurance Program

University of Maryland students have the opportunity to apply to The George Washington University School of Medicine Early Assurance Program. This program encourages talented and committed undergraduate sophomore students in the humanities, who have achieved academic distinction and a record of service to others in and out of the medical field, to gain a provisional early acceptance to the M.D. program. The George Washington University School of Medicine and Health Sciences makes the decision to accept a qualified student into the program. Selected sophomore students (rising juniors, when selected) are nurtured through their undergraduate experience at the University of Maryland. Upon successful completion of the undergraduate program and all delineated requirements, students are guaranteed admission to The George Washington University School of Medicine and Health Sciences for a four-year M.D. degree program. Please visit HPAO to learn more about this program; the pre-medical website offers detailed information and specific instructions: http://www.prehealth.umd.edu/early-assurance-programs.

Pre-Nursing

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Nursing track prepares students for entrance into a professional curriculum for Nursing at institutions that offer Bachelor of Science in Nursing programs. Pre-Nursing is not a degree-granting program at the University of Maryland, College Park. A Baccalaureate degree program for a Bachelor of Science in Nursing (B.S.N.) follows a 2+2 model also known as a Traditional Baccalaureateprogram. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school to complete two years of professional course work, which includes classroom, laboratory, and clinical education. Prerequisite courses are not limited to two years and can be completed in three years.

University of Maryland College Park/University of Maryland School of Nursing Guaranteed Admission Pathway: First time Freshmen admitted to University of Maryland College Park are eligible to participate in a guaranteed admission pathway with the University of Maryland School of Nursing. Students may be admitted directly into the pathway upon admission to University of Maryland, College Park or may enter the pathway after matriculation. Students must complete pre-requisite coursework earning a 3.25 overall and a 3.0 in the required science coursework in order to maintain eligibility for guaranteed admission to University of Maryland School of Nursing where the rest of their training is completed. For more information visit www.prehealth.umd.edu.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing approximately twenty to twenty-five credits of nursing prerequisites. This is the Second Degree or Accelerated Second Degreemodel. In this model, students complete degree requirements in their chosen major, as well as the nursing prerequisites for entrance into an accelerated B.S.N. or C.N.L. program. The institution offering the program confers a Bachelor of Science in Nursing or Clinical Nurse Leader (Masters of Science) upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Nursing maintains specific information about individual nursing program prerequisites.

Pre-Occupational Therapy

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Occupational Therapy track prepares students for entrance into a professional curriculum for Occupational Therapy at institutions that offer professional advanced degrees,

including master or doctoral degrees. Community colleges and technical schools offer associate degrees or certificates to students who wish to become occupational therapy assistants. Some colleges offer Bachelor degrees in Occupational Therapy, while others offer combined Bachelor and Master degree programs.

Students who wish to enter the occupational therapy profession may choose from several educational paths; they should thoroughly research the different options to determine the best path to their career goals. University of Maryland students have the option of completing a four-year degree at College Park, in their selected major, in addition to completing occupational therapy prerequisites. They may then choose to complete a Post-Bachelor certificate, Master of Science or doctoral degree in Occupational Therapy offered by professional schools. Some states require a degree in occupational therapy prior to approving licensure to work as an occupational therapist in that state. The certificate cannot substitute for a degree. Students should become familiar with the laws of the state(s) in which they wish to work if they choose to pursue a certificate rather than a degree.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Occupational Therapy Association maintains specific information about individual program prerequisites. See www.aota.org.

Pre-Pharmacy

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Pharmacy track prepares students for entrance into a professional curriculum for Pharmacy at institutions that offer a Doctor of Pharmacy (Pharm.D.) degree program. Pre-Pharmacy is not a degree-granting program at the University of Maryland, College Park. A Pharm.D. degree program follows a 2+4 model in which students complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional pharmacy school to complete four years of professional coursework, which includes classroom, laboratory, and clinical education. Prerequisite courses are not limited to two years and can be completed in three years.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing pharmacy school prerequisites, a 4 + 4 model. In this model, students complete degree requirements in their chosen major, as well as the pre-pharmacy prerequisites for entrance into a professional pharmacy program. The institution offering the program confers a Pharm.D. degree upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Pharmacy maintains information about individual Pharm.D. program prerequisites. See www.aacp.org.

Pre-Physical Therapy

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Physical Therapy track prepares students for entrance into a professional curriculum for Physical Therapy at institutions that offer a doctoral degree. Pre-Physical Therapy is not a degree-granting program at the University of Maryland, College Park.

Most physical therapy schools now confer only doctoral degrees, Doctor of Physical Therapy (D.P.T). Currently, the accepted, entry-level clinical degree to practice as a Physical Therapist is the D.P.T. The length of time to complete the D.P.T coursework is usually three years. University of Maryland students interested in attending a D.P.T program need to complete a four-year degree in their selected major in addition to completing physical therapy prerequisites. The coursework required to enter a Doctor of Physical Therapy (D.P.T.) degree program varies depending on the professional schools to which the student intends to apply and the expected year of matriculation into the professional phase of Physical Therapy. Most physical therapy schools also require some health-care experience in the physical therapy field.

Several educational paths exist for students who wish to enter the physical therapy field. Students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Physical Therapy Association as well as the Physical Therapy Centralized Application Service maintains information about individual program prerequisites. See www.apta.org and/or www.ptcas.org.

Pre-Physician Assistant

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The Pre-Physician Assistant (P.A.) program prepares students for entrance into a professional curriculum for Physician Assistant at institutions that offer a Master's degree in this field. Pre-Physician Assistant is not a degree-granting program at the University of Maryland, College Park. At the University of Maryland, students may complete the necessary prerequisite courses required by the professional physician assistant programs to which they will be applying. Pre-Physician Assistant typically follows a 4+2 model (though some professional programs may exceed 2 years). Students complete a four-year degree at College Park in their selected major, in addition to completing Physician Assistant prerequisites in areas including but not limited to science, psychology, and statistics. Most physician assistant schools also require health-care experience, many preferring applicants to have worked directly with patients. The institution

offering the program confers a Master's degree upon completion of the Physician Assistant program.

Several educational paths exist for students who wish to enter the physician assistant field. Due to the many variables in the educational options, students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals. Students should check the particular prerequisites of the P.A. educational programs that interest them.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Academy of Physician Assistants as well as Physician Assistant Education Association maintains information about individual program prerequisites. See www.aapa.org and/or www.paeaonline.org.

Other Health Programs

1210 HJ Patterson Hall, 301 405 7805
prehealth.umd.edu
preprof@umd.edu

The pre-biomedical science research and medical technology program prepares students for entrance into the professional curriculum for medical technologists and biotechnologists. Pre-Medical Technology is not a degree-granting program at the University of Maryland, College Park.

A degree program for a Bachelor of Science in Medical Technology (B.S.-M.T.) generally follows a 2+2 model. Students may complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional school to complete two years of professional coursework, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing medical technology prerequisites, the 4 + 2 model. In this model, students complete degree requirements in their chosen major, as well as the pre-medical technology prerequisites for entrance into a professional medical technology program. The institution offering the program confers a Bachelor of Science in Medical Technology degree on completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Society of Clinical Pathologists and the National Accrediting Agency for Clinical Laboratory Sciences maintain information about individual B.S.-M.T. program prerequisites.

Pre-Professional Advising: Law

0110 Hornbake Library, 301-405-2793
www.prelaw.umd.edu
gshaffer@umd.edu

Pre-Law Advising Program

0110 Hornbake Library, 301-405-2793
www.prelaw.umd.edu
prelawadvisor@umd.edu

The Pre-Law Advising Office within Letters and Sciences serves all current and former students at the University of Maryland interested in pursuing law school and careers in law. The program provides students with law school planning, including individual and group advising, career preparation workshops, admission information, and much more. While law schools do not require, favor, or prefer specific majors, the pre-law advisor can provide guidance concerning the choice of major. Pre-law does not serve as an undergraduate major, nor does the program require completion of a specific academic curriculum.

Four-Year Baccalaureate Program

Most law schools require applicants to have received a Bachelor's degree prior to law school enrollment. A wide variety of majors give students an excellent foundation for law school. The student should select a major and plan an undergraduate experience in which they will be successful and helps them acquire skills that are essential in preparing to perform well on the LSAT, in law school, and ultimately as a lawyer. These skills include imaginative and coherent thinking, critical reasoning, accurate and perceptive reading, and a strong command of the spoken and written language, including grammar.

In some cases, law schools will consider truly outstanding applicants with only three years of academic work, as described below. Law schools do not require the completion of prerequisite courses for admission, but they do require that the student follow one of the standard academic majors offered at the student's undergraduate institution. The LSAT is offered four times per calendar year and is required of all applicants. More information on the LSAT and related admissions material may be found at www.lsac.org.

Three-Year Arts/Law Degree

The University of Maryland has cooperative agreements with the University of Baltimore School of Law and University of Maryland Francis King Carey School of Law. These agreements provide students at College Park, who are enrolled in any recognized major and meet certain qualifications, with the opportunity to apply to law school one year early. If accepted, the Three-Year Arts/Law Degree program allows students to begin their law school studies prior to their receipt of their baccalaureate degree. Instead, the University of Maryland, College Park awards these students their baccalaureate degree in Arts/Law upon satisfactory completion of the first

year of law school. Participation in this program at the University of Maryland, College Park and application to the University of Baltimore Law School or University of Maryland Francis King Carey School of Law under this program does not guarantee admission.

This program is only available with the University of Baltimore Law School and University of Maryland Francis King Carey School of Law and may not be an appropriate choice for all students. Students who consider this program should contact the pre-law advisor for more information or view the website, at www.prelaw.umd.edu.

Pre-Professional Advising: Pre-Veterinary Medicine

1409 Animal Sciences Center, 301-405-6495
http://ansc.umd.edu/undergraduate/vet-school-faq
sbalcom@umd.edu

Advising for pre-veterinary students occurs at two levels: initially, Dr. Sarah Balcom, DVM, pre-veterinary advisor in the Department of Animal and Avian Sciences (1409 Animal Sciences Center; 301-405-6495 or email at sbalcom@umd.edu), will advise students, regardless of major, about preparing for veterinary school. During the freshmen and sophomore years, advising is done through spring group advising meetings which cover topics such as coursework, grades, finances, extra-curricular activities, gaining animal and veterinary experience, and securing academic and professional references. For students in the process of applying to veterinary school, Dr. Balcom is available for email and one-on-one consultations. As students progress and establish academic credentials, they should also use the advising resources of the Virginia-Maryland Regional College of Veterinary Medicine, 8075 Greenmead Drive, University of Maryland, College Park, MD 20742-3711. Dr. Nathaniel Tablante (301-314-6810, nlt@umd.edu) is the pre-veterinary advisor for the Regional College at that location.

Pre-Veterinary Medicine

1409 Animal Sciences Center, 301-405-6495
http://ansc.umd.edu/undergraduate/vet-school-faq
sbalcom@umd.edu

University of Maryland students in any major may prepare for admission to veterinary school by completing the basic science and other courses required by veterinary colleges. The College of Agriculture and Natural Resources major in Animal Sciences (Science/Pre-professional option) includes many of the commonly required courses; however, students should consult catalogs from the veterinary schools to which they are interested in applying to determine the specific courses required by each. That information is available through the American Association of Veterinary Medical Colleges (http://www.aavmc.org/).

Advising for pre-veterinary students occurs at two levels: initially, Dr. Sarah Balcom, DVM, pre-veterinary advisor in the Department of Animal and Avian Sciences (1409 Animal Sciences Center; 301-405-6495 or email at sbalcom@umd.edu), will advise students, regardless of major, about preparing for veterinary school. During the freshmen and sophomore years,

advising is done through spring group advising meetings which cover topics such as coursework, grades, finances, extra-curricular activities, gaining animal and veterinary experience, and securing academic and professional references. For students in the process of applying to veterinary school, Dr. Balcom is available for email and one-on-one consultations. As students progress and establish academic credentials, they should also use the advising resources of the Virginia-Maryland Regional College of Veterinary Medicine, 8075 Greenmead Drive, University of Maryland, College Park, MD 20742-3711. Dr. Nathaniel Tablante (301-314-6810, nlt@umd.edu) is the pre-veterinary advisor for the Regional College at that location.

There is also a active pre-veterinary society (http://agnr.umd.edu/students/clubs-and-organizations/veterinary-science-club) on campus that provides its members with regular speakers, animal volunteering opportunities, networking, and comradery. Pre-veterinary students are strongly encouraged to join.

Pre-veterinary students are asked to read our Pre-veterinary advising guide (http://ansc.umd.edu/undergraduate/vet-school-faq), as it answers many common questions about preparing for and applying to veterinary schools.

Early Admission:
Students enrolled in the Combined Degree Option (http://ansc.umd.edu/undergraduate/program-options/combined-ag-veterinary-medicine-1299d) are eligible for a special degree program that confers a Bachelor of Science degree in Agriculture and Pre-Veterinary Medicine. Students who will have completed 90 undergraduate credits (including all science courses required for veterinary school application and university general education) and who will have met other application criteria for veterinary schools by the end of the junior year, may apply in the Fall of their junior year. If they matriculate in an accredited college of veterinary medicine, they may apply the successful completion of the first thirty hours of their professional training towards the completion of their baccalaureate degree. See the Undergraduate Catalog entry for Animal Sciences for more details.

Psychology (PSYC)

College of Behavioral and Social Sciences
1121 Biology-Psychology Building, 301-405-5862
www.psychology.umd.edu
psycadvising@umd.edu
Chair: J. Blanchard
Director: M. Dougherty (Director of Graduate Studies), N. Salahuddin (Director of Undergraduate Studies)
Professors: G. Ball (Dean, BSOS), O. Barbarin (Chair, African-American Studies), J. Blanchard, S. Brauth, J. Cassidy (Distinguished Scholar-Teacher), A. Chronis-Tuscano, R. Dooling (Distinguished Scholar-Teacher), M. Dougherty (Associate Chair), M. Gelfand (Distinguished Scholar-Teacher), P. Hanges, C. Hill, A. Kruglanski (Distinguished University Professor), K. O'Brien, L. Pessoa, C. Stangor
Associate Professors: A. De Los Reyes, L. Dougherty, J. Herberholz, E. Lemay, L. MacPherson, K. Norman, T. Riggins, M. Roesch, D. Yager (Associate Chair)

Assistant Professors: J. Beier, E. Bernat, E. Glasper, J. Grand, D. Iwamoto, J. Mohr, E. Redcay, A. Shackman, R. Slevc, J. Wessel
Lecturers: R. Curtis (Assistant Director of Undergraduate Studies), S. Roberts, N. Salahuddin, D. Selterman, T. Tomlinson
Professors Emeriti: R. Brown, C. Gelso, W. Hall, W. Hodos (Distinguished University Professor), C. Moss, K. Murnane, K. O'Grady, H. Sigall, B. Smith, R. Steele, C. Sternheim, F. Tyler, T. Wallsten

The Major

The undergraduate major in Psychology provides an introduction to the study of human behavior. This includes an understanding of the neurobiological, developmental, social, and evolutionary factors influencing our thought and behavior. Through that understanding comes the ability to modify behavior in beneficial ways. Courses are organized into three broad themes: 1) Mind, Brain, and Behavior; 2) Mental Health and Interventions; and 3) Social, Developmental, and Organizational Studies.

The program emphasizes a strong foundation in quantitative and research methods. Beyond coursework, students will have opportunities to assist with and conduct research, an important advantage in any career path.

Students who are interested in the biological aspects of behavior tend to choose a program leading to the Bachelor of Science (BS) degree, while those interested primarily in the impact of social factors on behavior tend to choose the Bachelor of Arts (BA) degree. The choice of program is made in consultation with an academic advisor.

Courses offered by this department may be found under the following acronym: PSYC

Program Objectives

Students in the B.A. and B.S. programs in Psychology will have a broad exposure to the diverse approaches to studying human behavior. They will acquire the tools and experiences necessary for successful careers utilizing their skills in the behavioral and social sciences. Their training will include a foundation in research methods, critical and creative problem solving, and effective communication. Students will also master the primary concepts and ideas representing both the breadth and depth of the fields in psychology.

Program Learning Outcomes

1. Knowledge base in psychology

- Describe key concepts, principles, and overarching themes in psychology
- Develop a working knowledge of psychology's content domains
- Describe applications of psychology

2. Scientific inquiry and critical thinking

- Use scientific reasoning to interpret psychological phenomena
- Engage in innovative and integrative thinking and problem solving
- Interpret, design, and conduct basic psychological research
- Understand sociocultural factors in scientific inquiry

3. Ethics

- Understand and follow ethical practices in academic study and scientific research
- Understand the concepts and practice of ethical principles in a broad range of professional contexts
- Understand the role of academic, professional, and personal integrity in maintaining a healthy community

4. Multiculturism and diversity

- Understand the socio-cultural influences on human development and behavior
- Demonstrate critical awareness of one's own worldview, values, and biases
- Exhibit the ability to work respectfully and constructively with individuals of different backgrounds, values, and experiences
- Demonstrate the ability to integrate multicultural concepts into psychology research, theory, practice, and service to others

5. Communication

- Demonstrate effective writing for different purposes
- Exhibit effective presentation skills for different purposes
- Interact effectively with others

6. Professional development

- Apply psychological content and skills to career goals
- Refine project management skills

- Enhance teamwork capacity

- Develop meaningful professional directions for life after graduation

For more information on the psychology learning outcomes, go to the department website: http://psychology.umd.edu.

Academic Programs and Departmental Facilities

State of the art research labs in the Psychology Department provide students with opportunities for studies in clinical and counseling psychology, cognitive and neural systems, developmental psychology, and social, decisional and organizational sciences. Students benefit from a close relationship with the University Counseling Center. The new Maryland Neuroimaging Center makes available facilities for several types of functional brain imaging including fMRI and high-density EEG. The Psychology Department also contains the internationally recognized Center for Addictions, Personality, and Emotions Research (CAPER).

Admission to the Major

In accordance with University policy, the Department of Psychology has been designated a Limited Enrollment Program (LEP) (http://www.lep.umd.edu/). All first-time freshman who request psychology as a major will be directly admitted into the major. Other first-time freshman who wish to declare psychology as a major prior to the last day of classes of their first semester in residence will be allowed to do so.

In order to remain a psychology major, newly admitted freshman will be required to meet an academic performance review on or before the end of the semester in which they earned 45 University of Maryland credits. This standard includes:

a. Completion of PSYC100 with a grade of "B-" or higher (if the student has Advanced Placement credit for PSYC100, the student must complete PSYC221 with a grade of "B-" or higher)

b. Completion of MATH120 or MATH140 with a grade of "C-" or higher. MATH 140 is highly recommended for students pursuing a B.S. in Psychology. (MATH 130 is acceptable only for declared PSYC/BSCI double majors and for students who have taken the course prior to becoming a PSYC major.)

c. Completion of BSCI170 (Principles of Molecular and Cellular Biology) and BSCI171 (Principles of Molecular and Cellular Biology Lab) with a minimum grade of "C-" in both courses.

d. A minimum cumulative grade point average of 2.00 in all coursework taken at the University of Maryland.

All other students, including both internal and external transfer students, will be admitted to the program only if they have met the above LEP requirements and also have a minimum cumulative GPA based on all previous college-level coursework of 2.70 or higher.

For a more detailed discussion of LEP policies visit www.lep.umd.edu and then call 301-405-5866 to consult with one of our academic advisors.

Any student denied admission or dismissed from the major may appeal to the Director of Undergraduate Studies in Psychology (http://psychology.umd.edu).

Internal transfer students may appeal to the Office of the Dean for Behavioral and Social Sciences (www.bsos.umd.edu).

External transfer students may appeal to the Office of Admissions (www.admissions.umd.edu).

Requirements for the Major

All students must complete at least 35 credits (11 courses) in Psychology. The required courses include:

- PSYC100 – Introduction to Psychology
- PSYC200 – Statistical Methods in Psychology
- PSYC300 – Research Methods in Psychology (4 credit lab)
- A minimum of 2 courses from each of the following three thematic areas:
    - Mind, Brain, & Behavior
    - Mental Health & Interventions
    - Social, Developmental, & Organizational Processes
- Two 400 level, 3 credit PSYC courses
- One additional 4 credit PSYC lab course

A detailed list of courses by theme can be found at the following link: http://psychology.umd.edu/undergraduate/courses-syllabi

A grade of "C-" or better must be earned in all 35 credits of psychology courses used for the major, except for PSYC100 (or PSYC221, if AP credit was earned for PSYC100), in which the grade must be "B-" or higher. No course may be used as a prerequisite unless a grade of "C-" is earned in that course prior to its use as a prerequisite.

Students pursuing the Bachelor of Science degree option must complete a minimum of 5 courses/17 credits in mathematics and science. At least three courses must be advanced and at least two courses must contain a lab. The 5 courses/17 credits must be completed with at least a 2.0 average. MATH140 (highly recommended) or MATH120 (formerly MATH220) and BSCI170 plus BSCI171, may be used to satisfy part of the requirement for the B.S. degree. (MATH130 is acceptable only for declared PSYC/BSCI double majors and for students who have taken the course prior to becoming a PSYC major.) Students should consult the following website for a list of approved advanced math and science courses for the Bachelor of

Science in psychology:
http://ter.ps/psycbs

Requirements for the Minor

Neurosciences

The minor in Neurosciences will give the highly qualified and motivated undergraduate an opportunity to study Neuroscience. The emphasis includes study in systems, cognitive, and computational neuroscience in a manner that crosses the traditional boundaries of Psychology, Biological Sciences, and other related disciplines. The minor is most appropriate for students who already have a background in the biological sciences or psychology.

- All majors are eligible for the minor except students in the Physiology & Neurobiology (PHNB) track in Biological Sciences (BSCI).
- There are a number of science course prerequisites for the required and elective classes. Students should carefully review the prerequisites for all courses listed for the Neurosciences minor. A student without a sufficient science background may not be able to complete the minor in the allotted credits.
- Students may only count a maximum of two courses (6-8 credits) toward both their major degree requirements and the minor in Neurosciences.

Eligibility and Application to the Minor

In order to apply for the minor in Neurosciences, a student must have:

1. Completed at least 30 college credits and at least 15 credits at UM.
2. Earned at least a "C-" in BSCI170&171 and CHEM131&132 or have AP equivalents.
3. Earned at least a "C-" in PSYC301 or BSCI330.
4. Be in good academic standing.

Applications for the Minor in Neurosciences will be considered three times each year on October 1, March 1, and June 1. Students will be notified via email regarding the status of their application within three weeks of the submission deadline so that students will know whether or not they are accepted to the prior to early registration for the next semester.

Interested students may submit an application for the minor to the Undergraduate Psychology Office (BPS 1121). Applications are available on the Neurosciences and Cognitive Sciences (NACS) Program website at www.nacs.umd.edu.

Course Requirements

There are five required courses (11-14 credits) and two elective courses (6-8 credits) for a total of 17-22 credits to complete the minor. The five required courses and their prerequisites are listed below. All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average

across all courses used to satisfy the minor requirements. A list of eligible electives can be found on the program website at www.nacs.umd.edu.

Required Courses	**Course**	**Prerequisites**
(5 courses, 11-14 credits)		
PSYC301 or BSCI453	PSYC301 Biological Basis of Behavior (3) BSCI453 Cellular Neurophysiology (3)	BSCI70&171, PSYC100 BSCI330, CHEM231/232, PHYS122
PSYC401 or BSCI454	PSYC401 Biological Basis of Behavior Lab (4) BSCI454 Neurophysiology Lab (1)	BSCI170&171, PSYC200, PSYC301 or equiv. BSCI330, CHEM231/232, PHYS122
PSYC402 or BSCI446	PSYC402 Neural Systems (3) BSCI446 Neural Systems (3)	PSYC206 or PSYC301 BSCI330
PSYC403 or BSCI360	PSYC403 Animal Behavior (3) BSCI360 Principles of Animal Behavior (3)	PSYC206 or PSYC301 BSCI170&171, BSCI160&161, BSCI222
PSYC409	Topics in Neuroscience Seminar (1)	Permission of Instructor & Department

Advising

The Department of Psychology's Office of Undergraduate Studies has three full-time academic advisors to assist you every step of the way. Advising is not mandatory, but we encourage all students to schedule an appointment at least once a semester, particularly first year freshmen, new psychology majors, and first semester transfer students to take advantage of advising. Advisors are located in the Biology-Psychology Building Room 1121.

Some examples of common advising services include assistance with:

- Strategies for degree completion
- Opportunities in the psychology major
- Department and university policies
- Career and internship opportunities
- Research opportunities
- Social and personal adjustment to university life
- Preparation for graduate study
- Other ways to enrich your undergraduate experience

For assistance via email write PSYCadvising@umd.edu

Walk-in advising: Monday through Friday 10 a.m. - noon. No appointment is necessary.

Appointments: Call **301-405-5866** to schedule afternoon appointments.

Contact information for the staff of the Office of Undergraduate Studies can be found on http://psychology.umd.edu/undergraduate/psyc-advising

Undergraduate Research Experiences

Research experience is strongly encouraged for students who wish to pursue graduate training in psychology. The faculty welcome undergraduate research students into their labs, and every semester over 100 students take advantage of these opportunities. The Office of Undergraduate Studies advertises opportunities for students to participate in research. See http://ter.ps/PSYCblog and subscribe to receive announcements by email. Many students also find research opportunities on their own by approaching individual faculty members and graduate students with whom they share common research interests.

Freshmen and sophomore students can participate as a Maryland Student Researcher in the Maryland Center for Undergraduate Research. Students participating in this program have the opportunity to work individually with faculty members.

If eligible, students can earn academic credit for research participation (maximum of 9 credits) through PSYC479, Independent Research in Psychology. Applications and requirements for PSYC479 are available here: http://psychology.umd.edu/undergraduate/research-assistantships

Internships

The Washington D.C. Area is rich in offering a variety of high-quality psychological research and practice opportunities. These include research organizations, training and service-delivery agencies, and institutions involved in legal, policy, and legislative concerns that intimately affect the psychological well-being of the nation. Opportunities for field experience exist in all areas of psychology.

Working with psychologists and related professionals in these settings can be a source of considerable enrichment for you. You can apply your classroom learning, test out your interests and skills in psychology, and receive training in a specialized aspect of psychology which is not available on campus.

The Psychology E-News Blog (http://umdpsyc.blogspot.com/), the University Career Center and the President's Promise (http://www.studentaffairs.umd.edu/university-career-center-the-president-s-promise), and individual organizations in the area are all good sources for you to consult in your search for an internship experience. Some additional tips on finding internships are posted online here: http://psychology.umd.edu/undergraduate/finding-internships

If you have identified a psychology-related internship opportunity and would like it to be considered for academic credit, you should download and submit the PSYC389 contract online (http://psychology.umd.edu/undergraduate/psyc-forms), once you are sure that you meet the requirements.

Honors Program

The Honors Program in Psychology is designed to enrich and accelerate the acquisition of knowledge in the field. The goals of the honors program of the psychology department include:

- Train students to think as independent scholars.
- Provide opportunities for close, scholarly analysis of significant topics in psychology.
- Encourage and provide opportunities for students to undertake independent research.
- Introduce students to a broad range of advanced psychological principles and methodologies.

Details about program eligibility and how to apply are posted here: http://psychology.umd.edu/undergraduate/psyc-honors-program

For more information about the Honors Program in Psychology please call 301-405-5866 to schedule an appointment with the Assistant Director of Undergraduate Studies.

Student Societies and Professional Organizations

The University of Maryland chapter of the **Psi Chi International Honor Society in Psychology** provides membership to students who meet the application requirements. Psi Chi members abide by the core values of scholarship, service, and community, receive academic recognition for their achievements in psychology, and have the opportunity to connect and build relationships with other members, faculty members, and professionals. Details and contact information about Psi Chi can be found on the chapter's website: http://umdpsichi.weebly.com

Active Minds at Maryland is a student-run organization that focuses on mental health awareness and advocacy on campus. Members are students interested in psychology, medicine, and public health, students who have friends or family members with a mental illness, and/or students who are struggling with mental illness themselves. To learn more, please visit the Active Minds at Maryland website (http://umdactiveminds.webs.com/) or facebook page (https://www.facebook.com/ActiveMindsAtMaryland/info?tab=overview).

The **Multicultural Association of Psychology Students (MAPS)** provides networking events and seminars serving the breadth of interests of UMD psychology majors. MAPS activities promote awareness of post-graduate, research, and community outreach opportunities. In addition, MAPS enhances the community through discussions and events emphasizing the full diversity of Psychology students encompassing many cultures and personal identities (including race, gender, sexual orientation, religion, and others).

To learn more about MAPS, please visit http://umdmaps.weebly.com/or https://www.facebook.com/UMDmaps/

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The **Mark S. Harper Award for Excellence in Psychology** is given annually at the spring commencement to the graduating senior who best exemplifies the spirit of Mark, a UM Psychology graduate. The top 10 percent of the graduating class are eligible to be nominated by a faculty member for the award.

The Department's **Award for Excellence in Student Leadership** goes to a student nominated by his or her peers for an outstanding commitment to advancing the opportunities and achievements of fellow psychology majors, students and community members.

The **Harper Travel Award** provides travel support for students presenting their research at professional conferences. Please contact the undergraduate office for more information and an application form.

Public Health Science (PHSC)

School of Public Health
SPHL Room 2302 School of Public Health, 301 405-5436
http://sph.umd.edu/degrees/bs-public-health-science-college-park
kcips@umd.edu
Chair: S. Roth (Prof & Assoc Dean, Prof)
Director: K. Cipriani (Asst Dir)
Associate Professors: M. Haider (Assoc Res Prof)
Assistant Professors: C. Dallal (Asst Prof), T. Dyer (Asst Prof), M. Grantham (Asst Rsch Prof), M. Jones (Asst Prof, Aff Asst Prof), E. King-Marshall (Asst Rsch Prof), D. Payne-Sturges (Asst Prof)
Lecturers: G. De Silva (Lecturer), J. O'Hara (Lecturer)

The Major

The Public Health Science Bachelor of Science degree is an interdisciplinary program designed to provide students with the educational foundation required to effectively address local, national and global issues within the public health arena. As a collaborative degree involving multiple scholarly disciplines, courses offered by this department may be found under the following acronyms: PHSC, SPHL, HLTH, KNES, EPIB, MIEH and HLSA.

The degree effectively prepares students to pursue exciting careers in allied health fields and medicine as well as post-baccalaureate professional and academic degrees.

Program Objectives

The Public Health Science Bachelor of Science degree is an interdisciplinary program designed to provide students with the educational foundation required to effectively address local, national and global issues within the public health arena.

Program Learning Outcomes

1. Students will demonstrate knowledge of the core public health concepts (environmental health sciences, health services administration, biostatistics, epidemiology, and social and behavioral sciences).
2. Students will integrate scientific concepts into the solving of public health issues.
3. Students will apply an interdisciplinary approach to inform public health practice.

Academic Programs and Departmental Facilities

The Public Health Science Program is located within the School of Public Health which houses multiple research centers and laboratories. Grant-funded faculty mentor both graduate and undergraduate students in areas such as neuroscience, Alzheimer's, global health, environmental health, health policy, epidemiology, biostatistics, concussions, sports medicine, prosthetics, health equity, tobacco, and community health.

Admission to the Major

It is recommended that prospective students enjoy science and strive to meaningfully translate this knowledge into the core mission of improving public health locally, nationally and globally.

Other Requirements for the Major

Students must earn a "C-" in all courses which are required for the major, including prerequisite courses. Elective coursework is designed to facilitate future career interests in allied health, medicine and/or post-baccalaureate degrees.

In addition to the science foundation courses and the Public Health Science foundation courses, students must complete 12 credits of upper level options courses from the following list:

The Public Health Science option courses build upon the Scientific and Public Health Science Foundation courses. The option courses are 300 and 400 level courses offered within the School of Public Health*. By choosing from these courses, students have an opportunity to customize their program. Students are encouraged to choose courses that best align with a particular career goal.

COURSE ID	COURSE TITLE	CREDITS
EPIB330	The Coming Plague	3
EPIB400	Obesity: An Epidemiologic Perspective	3
FGSM320**	Federal Fellow Seminar: Public Health Policy	3
FMSC310§	Maternal, Child, and Family Health	3
FMSC460	Violence in Families	3
HLTH371	Communicating Safety and Health	3
HLTH377	Human Sexuality	3
HLTH424	Lesbian, Gay, Bisexual & Transgender Health	3
HLTH434	Introduction to Public Health Informatics	3
HLTH460	Minority Health	3
HLTH471	Women's Health	3
HLSA484	Redesigning Health Care: Developing a Clinic to Meet Community Needs	3
KNES460	Physiology of Aging and the Impact of Physical Activity	3
KNES461	Exercise and Body Composition	3
MIEH321	Syphilis to SARS: Climate Change, Development, and Emergence of Infectious Diseases	3
MIEH330	Environmental Justice, Racism, and Environmental Health Disparities	3
MIEH331	The Built Environment, Sustainability, and Public Health	3
MIEH480	Introduction to Occupational Health	3
PEER318/319¶	CARE Peer Advocacy/Outreach	3/3

COURSE ID	COURSE TITLE	CREDITS
PEER311/321¶	Peer Education: Mental Health & Wellness Fall/Spring	3/3
PEER312/322¶	Peer Education: Sexual Assault Prevention Fall/Spring	3/3
PEER313/323¶	Peer Education: Alcohol and Other Drugs Education Fall/Spring	3/3
PEER314/324¶	Peer Education: Sexual Health & Wellness Fall/Spring	3/3
PHSC389#	Independent Research Study in Public Health Science	1-6
PHSC399#	Public Health Science Internship	1-6
PHSC402	Public Health Emergency Preparedness	3
PHSC420	Vaccines and Immunology	3
PHSC425	Genetics, Genomics, and Public Health	3

* Some of these courses have prerequisites. Please check testudo for details.
**This course is part of the federal semester program and includes an application process
§ Formerly FMSC410
¶ These courses are part of a peer education program run by the University Health Center. An application is required and you can find more information here.
# No more than 6 combined credits of independent study and internship can be counted as PHSC options. Independent study and internships from other departments can sometimes also be counted as PHSC options credit. Please meet with an advisor for more information.

Advising

Advising within the degree is strongly recommended. The program advisors coordinate closely with the School of Public Health Center for Academic Success and Achievement as well as the in-house Career Center and the Campus Career Center. Students interested in pursuing medicine should also consult the Allied Health Advising Center.

Undergraduate Research Experiences

Undergraduate research experiences, both research and applied, are highly recommended. Multiple formal opportunities exist both within the School of Public Health as well as the Washington DC metro area. A data base consisting of grant-funded research as well as external sites exists. Students may also propose internship opportunities.

Fieldwork Opportunities

The School of Public Health is, by design, defined by the application of theoretical knowledge to improving health in clinical and large populations. Multiple opportunities exist within the grant-funded SPHL research as well as the immediate metro area.

Internships

The Public Health Science degree maintains a separate internship data base. Please consult the Program Director, Ms. Kristin Cipriani at kcips@umd.edu.

Student Societies and Professional Organizations

The School of Public Health has a robust internal Honors Society composed of students from all four degree programs. Additionally, students are encouraged to become involved in global health opportunities such as Public Health Without Borders (http://sph.umd.edu/news-item/public-health-without-borders-students-return-peru-explore-new-projects-ethiopia), Half the Sky Movement (https://sph.umd.edu/content/half-sky-movement-umd), Health Leads (http://www.healthleadsusa.org/) and SHARE (Supporting Hospitals Abroad with Resources and Equipment).

Scholarships and Financial Assistance

Students may be partially supported through the TerpStart Scholarships, the Jerry Wrenn Scholarships, and the Federal Work Study Work Scholars grants (research internships mentored by SPH faculty). Additionally, The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The annual Convocation honors highly meritorious students who are recipients of the prestigious Dean's Scholars awards, the Jerry Wrenn Scholarship awards and the Lester M. Fraley award.

Public Policy (PLCY)

School of Public Policy
1118 Taliaferro Hall, 301-405-2370
http://publicpolicy.umd.edu/
plcyundergrad@umd.edu
Professors: K. Apfel (Prof Of Practice), D. Besharov (Prof), A. Bhargava (Prof, Affiliate Prof), I. Destler (Prof), S. Fetter (Assoc Prov, Prof), C. Foreman (Prof), R. Grimm (Prof Of Practice, Affiliate Prof), P. Joyce (Prof & Assoc Dean), D. Kettl (Prof), B. Mussington (Prof Of Practice), R. Nelson (Prof), A. Patwardhan (Prof), P. Reuter (Prof), A. Schick (Dist Univ Prof), S. Schwab (Prof), P. Swagel (Prof)
Associate Professors: A. Bies (Assoc Prof), T. Egan (Assoc Prof, Lecturer), R. Sprinkle (Assoc Prof), K. Vogel (Assoc Prof)
Assistant Professors: M. Afzal (Asst Prof)
Senior Lecturer: E. Duke (Senior Lecturer)
Lecturers: M. Gonzalez-Marcos (Lecturer), S. Washburn (Lecturer)
Clinical Professor: A. Robinson (Clin Prof)
Research Professor: R. Bierbaum (Res Prof), D. Crocker (Res Prof), N. Gallagher (Res Prof & Dir), W. Lucyshyn (Sr Res Schl, Res Prof), W. Nolte (Res Prof)
Associate Research Professor: T. Hilde (Assoc Res Prof)
Visiting Faculty: P. Kapur (Visit Prof)

The Major

The interdisciplinary Public Policy major focuses on using analytical decision-making to study an array of subjects ranging from the processes of making, implementing and evaluating government policies to the ethical evaluation of contemporary social problems, both domestic and international. The major has two distinctive components: 1) core foundational skills critical for the understanding and analysis of problems and proposed solutions; and 2) the application of these skills and competencies to address challenges in the real world by engaging with the policy process at local, state and national levels through real-time projects. The major in Public Policy at the University of Maryland equips students with competence in leadership and analytical skills, supported by theory and data, to prepare them for careers in public service, policymaking, and the public, private, and nonprofit sectors.

Courses offered by this department may be found under the following acronym: PLCY.

Program Objectives

The major aims of the program are to produce:

1. Individuals who better understand themselves and the world they live in through a focused, coordinated study of the major policy-related disciplines.

2. Citizens who are adept at promoting better public outcomes both by understanding public policy problems from an inter-disciplinary, multiâ€ sector, multiâ€ and by leading institutional and policy change.

3. Graduates who can easily find meaningful employment, and are wellâ€ prepared to enter numerous graduate and professional programs, due to their strong multiâ€ sector, interdisciplinary, analytical, problemâ€ solving, and leadership abilities.

Program Learning Outcomes

Students completing a Public Policy major will:

1. Possess a foundational understanding of the fields of public policy and leadership, including its key processes, methodologies, and actors, both present and historic.

2. Possess a foundational understanding of the key policy related precepts and methodologies of many disciplines, including history, economics, political science, international relations, sociology, data analysis, information science, ethics and justice.

3. Be adept at acquiring and maintaining a critical understanding of key policy related developments in the world.

4. Be adept at finding, understanding, organizing, and synthesizing data and the findings of other analysts/leaders, to produce an enhanced, multi-faceted, multi-perspective, objective understanding of public issues.

5. Be adept at seeing public issues from the perspectives of various constituencies and those with different backgrounds, especially those whose perspectives are under-represented in public forums and processes.

6. Be creative and systematic problem-solvers, able to relate and apply intellectual skills and theoretical knowledge to real world problems.

7. Be able to communicate – orally, on paper, and through media – analysis and findings, especially to people who do not share their analytical, professional, or cultural background.

8. Be able to intelligently work with and lead others who are working on, or are affected by, public issues, including those from different analytical, professional, or cultural backgrounds.

Admission to the Major

First-time freshmen students who wish to major in Public Policy at the University of Maryland are encouraged to apply for admission to the University by the priority deadline of November 1. There is no separate application for our major and seats in the major are guaranteed as we are NOT a limited enrollment program.

Current University of Maryland Students who wish to add the Public Policy major should contact our advisor at plcyundergrad@umd.edu for more information. Our major is not limited enrollment so all students are welcome assuming you have time to complete all the major requirements.

Requirements for the Major

PLCY Major Requirements

C- or better is required in all major courses and the cumulative average of these courses must be a 2.0.

Requirements	*Credits*
Benchmark Requirement One	
*Must be completed by the end of **two semesters** into the major*	
PLCY100—Foundations of Public Policy	3
HIST201 Interpreting American History: From 1865 to the Present (HU)	3
Benchmark Requirement Two	
*Must be completed by the end of **four semesters** into the major*	
PLCY 101 Great Thinkers on Public Policy (HS/IS)	3
STAT 100 (AR) Elementary Statistics and Probability or higher	3
Required Major Courses	
ECON 200 Principles of Microeconomics (HS)	3
PLCY 202 Public Leaders and Active Citizens (SP/IS pending) OR PLCY201 Leadership for the Common Good (SP/IS)	3
PLCY 203 Liberty and Justice for All: Ethics and Moral Issues in Public Policy	3
Introduction to Public Policy Focus	3
PLCY 303 Public Economics: Raising and Spending the People's Money (Pre-req: ECON200)	3
PLCY 300 Governance: Collective Action in the Public Interest (Pre-req: PLCY100 and PLCY101)	3
PLCY 304 Evaluating Evidence: Finding Truth in Numbers (Pre-req: STATS100)	4
PLCY302 Examining Pluralism in Public Policy (Pre-req: PLCY203) (UP pending)	3
PLCY 305 Internship Class OR Approved Study Abroad	3
PLCY306: Public Policy Analysis in Action (Taken after 60 credits)	3
PLCY 401 Contemporary Issues in Public Policy (Taken after 90 credits)	3

PLCY 400 Senior Capstone (Taken after 90 credits; Pre-req: PLCY306)	3
Focus or PLCY electives (9 credits)	
Focus/PLCY Elective Course 1	3
Focus/PLCY Elective Course 2	3
Focus/PLCY Elective Course 3	3
TOTAL Major Credits	**58**

Advising

The Public Policy Major has mandatory advising every semester. Academic advising is an ongoing process that helps students clarify their educational and career goals, and then chart a meaningful plan for achieving those goals. Advising is the joint responsibility of the student and the advisor. The advisor assists students in evaluating their degree progress and helps them select appropriate courses and other educational experiences tailored to their personal goals. Ultimately, students are responsible for making decisions, setting and meeting identified goals and published requirements. Students can contact the Public Policy advising office by calling (301) 405-2370 or emailing plcyundergrad@umd.edu.

Internships

All Public Policy majors must either take an internship class or approved study abroad. It is highly encouraged in our field to do an internship. The School of Public Policy partners with the UMD Career Center to assist students in a successful job or internship search. Students can request an appointment (careers.umd.edu/request-appointment) with Career Center staff to help them on their journey.

Scholarships and Financial Assistance

The School of Public Policy currently offers two opportunities for financial support for undergraduate students:

Senator John A. Cade Public Leadership Scholarship
(www.publicpolicy.umd.edu/undergraduate/academics/financial-aid/cade-scholarship)

“Senator John A. Cade was one of Maryland's most extraordinary and exemplary public servants. As a member of the Maryland Senate from 1975-1996, his dedication to government, public service and education helped enhance the lives of his constituents. This scholarship was created to honor the memory of Senator Cade by supporting the education of undergraduates interested in pursuing a career in public service.”

The Rosalie Reilly Gubernatorial Fellowship
(www.publicpolicy.umd.edu/undergraduate/academics/financial-aid/reilly-fellowship)

“Rosalie Reilly was one of Maryland's most extraordinary and exemplary public servants and a role model for young women entering politics. She was a champion for educating young leaders as they prepared to enter public life. This fellowship was created to honor the memory of Ms. Reilly by supporting undergraduate women interested in public service. Fellows receive financial support and complete a year long student-directed entrepreneurial project oriented towards public service.”

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Romance Languages (ROML)

College of Arts and Humanities
3106 JimÃ©nez Hall, 301-405-4025
www.romancelanguages.umd.edu

The Major

The Romance Languages Program is intended for students who want to specialize in two of the Romance languages offered in SLLC: French, Italian, and Spanish. Students selecting this major take a total of 45 credits selected from courses in two of the three components. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made with the approval of the departmental language advisor only, in consultation with the Romance Languages advisor. 21 credits are taken in each of the two languages, as specified, and three additional credits are taken at the 4xx level in either of the languages chosen. Literature or civilization courses may not be taken in translation. Students who wish to apply for Teacher's Certification should consult the College of Education.

Placement in Courses

http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

French Requirements

FREN204	French Grammar and Composition	3
FREN250	Introduction to French Literature	3
FREN301	Composition and Style	3
FREN351	From Romanticism to the Age of Modernism and Beyond	3
FREN352	From the Age of Epic and Romance to the Enlightenment	3
FREN4xx	Two additional literature or civilization courses at the 4xx level	6

Italian Requirements

ITAL207	Reading and Writing in Italian	3
ITAL301	Italian Composition	3
ITAL351 or 352 or ITAL361 or 362	One additional course at the 3xx level in literature or culture	3
ITAL4xx	Three additional literature or civilization courses at the 4xx level with 1 credit colloquium	12

Spanish Requirements

SPAN207	Reading and Writing in Spanish	3
SPAN301	Advanced Grammar and Composition I	3
SPAN303	Approaches to Cultural Materials in Hispanic World	3
Two courses from SPAN331,332, or 333 **or** Two courses from SPAN361, 362 or 363	Two courses from Spanish Culture, Civilization & Literature I,II or III **or** Two courses from Latin American Literatures & Cultures I,II or III	6
SPAN4xx	Two literature or civilization courses at the 4xx level.	6

Additional Requirement for ROML Majors:
One additional course at the 4xx level in one of the two languages (3)

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website www.international.umd.edu/studyabroad.

Advising

Advisor: Stefania Amodeo zena@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The UG Committee organizes an annual awards ceremony to celebrate SLLC students who have earned SLLC, campus and/or national scholarships, and academic achievement awards. The awards ceremony takes place in conjunction with the annual SLLC UG Research Forum.

Russian Language and Literature (RUSS)

College of Arts and Humanities
3215 JimÃ©nez Hall, 301-405-4025
www.russian.umd.edu
Associate Professors: M. Lekic, C. Martin, E. Papazian
Lecturers: R. Fradkin, Z. Gerus-Vernola (Maya Brin Distinguished Lecturer), E. Lozinsky
Assistant Research Professor: A. Selemeneva

The Major

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the prerequisite of Elementary Russian (Russian 101-102 or equivalent). Many students pursue a double major or double degree in Russian and another discipline, such as international relations, business, history, economics, journalism, engineering, etc. Russian students have the opportunity to live in St. Mary's Language House, and the majority of majors participate in study abroad. Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult the undergraduate advisor. Students interested in enrolling in a course that appears closed or that has a waitlist are strongly encouraged to contact the faculty member or undergraduate advisor for Russian for permission to enroll.

Program Learning Outcomes

Russian majors will be able to communicate effectively in spoken Russian in a broad range of everyday situations and contexts; communicate effectively in written Russian in essays on a range of topics; and demonstrate fundamental knowledge of the culture(s) of the Russian Federation (literature, history, art, cuisine, traditions, etc.).

Placement in Courses

http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Students must take language-acquisition courses sequentially. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Requirements

RUSS201	Intermediate Russian I	5
RUSS202	Intermediate Russian II	5
RUSS301	Advanced Russian I	3
RUSS302	Advanced Russian II	3
RUSS3xx	One additional course at the 3xx level	3
RUSS401	Advanced Russian Composition	3
RUSS402	Practicum in Written Russian	3
RUSS4xx	One additional course at the 4xx level	3
RUSS	Two RUSS electives	6
RUSS3xx or 4xx level	Two 3xx or 4xx level RUSS electives*	6

**Must be taught in Russian*

Notes: One supporting course outside the department (at the 3xx or 4xx level) may be counted toward the major with an advisor's prior approval.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
Students majoring in Russian Studies are encouraged to spend a summer or a semester abroad. For information on study abroad programs see www.russian.umd.edu/abroad/index.html.

Requirements for the Minor

Russian Studies

School of Languages, Literatures, and Cultures
www.russian.umd.edu

The minor in Russian Studies is a series of five courses to be chosen in consultation with the departmental advisor. The completion of a Minor in Russian Studies provides students with a broad background in Russian language, literature, and culture.

A minimum of fifteen credits/five courses* is required, to be chosen from among the following:

Courses taught in Russian:
RUSS201, 202, 210, 211, 301, 302, 303, 307, 321, 322, 381, 382, 401, 402,403, 404, 405, 406, 407, 409, 410, 411, 412, 431, 432, 433, 434, 473

Courses in English:
RUSS221, 222, 281, 282, 298, 327, 328, 329, 398, 439

Courses in SLAVIC may also be counted toward the Russian Studies Minor: SLAV469, 475, 479

Prerequisites for the minor: RUSS102 (Elementary Russian) or the equivalent as determined by the department

**Note that in most cases, five courses of 3-credits each will fulfill the 15-credit requirement. However, RUSS 201 and 202 are 5 credit courses. If a student chooses to count these two courses as part of the minor, they are still required to complete three additional courses (for a total of five courses).*

- Courses taken through Study Abroad programs may be applied.
- A minimum of six credits must be earned from courses in Russian.
- At minimum of nine credits must be at the 3xx or 4xx level.

- Transfer credits (from study abroad or another US institution) may count toward the minor with approval of the department. In most cases, a maximum of six transfer credits will be approved.
- All courses counting toward the minor must be passed with a "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Substitutions of other departmental offerings may be approved by the advisor.

Oversight of the minor program will be through the normal academic processes of the Russian program in the School of Languages, Literatures and Cultures. The Undergraduate Advisor will be responsible for ensuring that students are properly advised and that records are appropriately kept.

To make an appointment or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Advising

Advisor: Ms. Zhanna Vernola vernola@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

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Science Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

Social Studies Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

Sociology (SOCY)

College of Behavioral and Social Sciences
2108 Parren J. Mitchell Art/Sociology Building, 301-405-6389
http://www.socy.umd.edu/
Chair: R. Korzeniewicz (Prof & Chair)
Director: L. Moghadam (Undergrad Director), L. Sayer (Prof & Grad Director)
Professors: F. Chen, P. Cohen (Prof), P. Collins, S. Desai, K. Finsterbusch, D. Fisher (Prof), J. Kahn, R. Korzeniewicz, J. Lucas (Prof & Assoc Chair), M. Moaddel (Prof), S. Presser, M. Rendall (Prof & Dir MPRC), G. Ritzer, R. Vanneman (Prof), A. Villarreal (Prof), W. Yu (Prof)
Associate Professors: M. Kestnbaum, M. Kleykamp, K. Marsh, A. Neustadtl, J. Park (Assoc Prof), J. Pease, R. Ray
Assistant Professors: L. Doan (Asst Prof), D. Dow (Asst Prof), C. Prell
Lecturers: J. Clark (Jr Lecturer, Lecturer), B. Connor (Lecturer), A. Forsythe (Lecturer), N. Kaya (Coordinator, Lecturer), A. Parkhouse (Lecturer), R. Pernick (Lecturer), Y. Yu (Lecturer)
Affiliate Associate Professors: S. Madhavan (Affil Assoc Prof, Assoc Prof)
Associate Research Scientist: W. Hadden (Assoc Res Sci)
Research Professor: M. Das Gupta (Res Prof)
Assistant Research Professor: A. McLaughlin (Asst Rsch Prof, Fac Asst), R. Turner (Asst Rsch Prof)
Professors Emeriti: R. Clignet, E. Dager, W. Falk, J. Hage, L. Hunt (Assoc Prof Emeritus), K. Kammeyer, L. Landry, J. Lengermann, B. Meeker, M. Milkie (Prof Emeritus), J. Robinson, D. Segal, M. Segal
Visiting Faculty: D. Schaefer (Visit Assoc Prof)

The Major

Sociology is the scientific study of society and its institutions, organizations, and groups. By observing the broad range of activities in society, and exploring topics such as social class, race,

gender, deviance, family, religion, the work place, and demographic trends, sociologists provide important information and perspectives on our social order and the causes and impacts of social change. Sociology provides important information useful both to personal life and public policy decisions. Sociology is among the broadest of the social sciences and is characterized by considerable pluralism in theoretical and methodological approaches, substantive specializations, and in units of analysis.

Students major in Sociology for a variety of reasons. Some emphasize sociology's relevance to understanding a broad range of social issues that interest them out of intellectual curiosity, personal life relevance, or usefulness for ameliorative social change efforts. Other majors emphasize acquisition of sociological knowledge and skills useful in a variety of career paths where understanding societal problems and trends, group dynamics, and personnel issues are critical. For a small core of majors the purpose of the undergraduate program is preparation and training for admissions to graduate programs and eventual careers as sociologists in teaching and research and/or policy development. Majors may also use sociology as a basis for graduate study in related fields, including law, social work, public policy, and human resource management.

Courses offered by this department may be found under the acronym: SOCY.

Program Objectives

The overall goals of the program are:

- To provide meaningful and challenging courses within the University general education program
- To provide meaningful and challenging courses as electives for non-majors
- To provide a coherent program of courses for Sociology majors which enables majors to attain:

    a) general sociological knowledge and understanding of our society
    b) sociological knowledge and skills relevant to a variety of career paths
    c) sociological knowledge and skills relevant to application and success within competitive sociology graduate programs
    d) to provide a Sociology Honors component for selected students who have the capability and motivation to work at the most challenging level

Program Learning Outcomes

Having completed the degree program, students should have acquired the following knowledge and skills:

- To be able to think critically and assess information about society using sociological concepts and a social science mode of argument.

- To be confident in one's understanding of key questions addressed by the discipline and the ways in which social structure and social interaction shape human behavior.
- To feel competent to use research tools to conduct and assess research.
- To understand the role of theory in the construction of sociological inquiry; for majors this entails knowing the central ideas of major classical and contemporary theorists.
- To understand and be able to apply statistical concepts.
- To understand the social science model of evidence and argument; for majors this entails familiarity with basic social science statistical techniques, basic methods of data analysis, basic methods of organizing and presenting information, and the ability to carry out a small research project.

Requirements for the Major

As part of the 120 credits and other requirements for a Bachelor of Arts degree, sociology majors must complete a minimum of 32 credits in Sociology and 3 credits in MATH107/111/220 or 140. All these credits must be completed with a minimum grade of "C-" or better in each course, and students must earn at least a 2.00 cumulative GPA for all courses in the major. The 35 credits in Sociology must include the following:

		Credits
Required Courses (11)		
Foundation Course Requirement		
MATH107	Introduction to Math Modeling and Probability	3
SOCY110	Introduction to the Logic of Social Inquiry	3
SOCY201	Introductory Statistics for Sociology	4
SOCY202	Introduction to Research Methods in Sociology	4
SOCY203	Sociological Theory	3
SOCY230	Introduction to Social Psychology	3
SOCY441	Stratification and Inequality	3
	Substantive Course Requirement- Four 400-Level SOCY courses	12
Two 400 level SOCY courses		6
Two 400 level SOCY Research Courses		6
	A list of methods or research courses selected from a list maintained by the Sociology Undergraduate Advising Office	

Students should note the following in reference to Sociology requirements:

a. SOCY201 has a prerequisite of Math107 or higher with a minimum grade of "C-";
b. Some of the courses necessary to fulfill substantive requirements, and/or the methods/research course requirement may have prerequisites such as SOCY201, 202, and 203;

c. Special topics courses (indicated with an * in the above lists) may be repeatable for credit if its content differs from when previously taken;
d. SOCY498 courses may be used to fulfill substantive course requirements; the Sociology Undergraduate Office maintains current lists of special topics courses (SOCY498); and
e. Each course counted as meeting sociology requirements must be passed with a grade of "C-" or better.

Other Requirements for the Major

Students must earn a minimum grade of "C-" in MATH111 and all major requirements. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy major requirements.

Advising

Regular advising is strongly recommended for all majors. Advising is particularly important for those majors who are considering graduate school. Majors are reminded of the importance of taking the required foundation courses (SOCY110, 201, 202, 203, 230 & 441) as soon as possible because these are prerequisite courses for the four 400-level Substantive courses. Degree audits are required of all majors at 60 and 90 credits. Further information on course work, internships, the department honors program, careers, and other topics may be obtained from the Sociology Undergraduate Advisor, 2108 Parren J. Mitchell Art/Sociology Building, 301-405-6389.

Internships

Although internships are not a requirement for the major, students may wish to consider the internship program offered by the department or through the Experiential Learning unit of the University Career Center @ BSOS. Majors may receive up to six credits in SOCY386 when an internship/volunteer position is combined with an academic project. A prerequisite of 12 credit hours in Sociology course work is required. Sociology internship credit does not count toward meeting requirements for the major.

Honors Program

The Sociology Honors Program seeks to encourage and recognize superior scholarship by providing an opportunity for interested, capable, and energetic undergraduate students to engage in study in an area of the student's interest under the close supervision of a faculty mentor. The honors program is based upon tutorial study and independent research.

Students who have an overall cumulative grade point average of at least 3.3, a cumulative average of 3.5 in Sociology courses, and who have taken at least nine credits in Sociology may apply. Transfer students with equivalent academic records at other accredited institutions are also eligible. Admission to the program will be based upon academic performance and the judgment of the Undergraduate Committee whether the applicant has sufficient maturity and interest to

complete successfully the requirements for graduation with Honors. Further information on the honors program is available from the Sociology Undergraduate Office.

Student Societies and Professional Organizations

The Sociology Collective, open to all Sociology majors, is organized by a group of interested undergraduates to fill student needs within the Sociology community. The Collective provides information about topics of interest, including department activities, career planning, and relevant changes within the university, and strives to enhance the sense of community within the department. Representatives of the Collective participate in many faculty committees within the department and thereby provide the undergraduate perspective on policy issues.

The Alpha Kappa Delta is the National Honor Society for Sociology majors. Membership is based on Sociology GPA (3.3 minimum) and overall GPA (3.3 minimum). Students may apply after they have completed 18 hours of Sociology course work. Application for membership may be made in the Sociology Undergraduate office and are accepted in both fall and spring semesters.

Scholarships and Financial Assistance

The Tara Lynn Resnick Scholarship is awarded annually to an outstanding female Sociology undergraduate student. This scholarship carries an award of $500 that may be used toward educational expenses for the following Fall semester. Applications are accepted during the Spring semester. Female students who have earned 60 credits and have a minimum GPA of 3.0 are eligible to apply.

The Parker-Fuller Scholarship is awarded annually to a full-time undergraduate Sociology major in their senior year of study on the basis of need. It provides an annual award of $1,000. Applications for this scholarship are accepted during the Spring semester.

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Spanish Language, Literatures, and Culture (SPAN)

College of Arts and Humanities
2215 JimÃ©nez Hall, 301-405-4025
www.spanish.umd.edu
Professors: C. Benito-Vessels, L. Demaria, R. Igel, J. Quintero-Herencia, S. Sosnowski
Associate Professors: H. De Pinillos, M. Lacorte, R. Long, E. Merediz, J. Naharro-Calderon, M. Penrose, A. Rodriguez
Assistant Professors: T. Lima
Senior Lecturer: A. Acedo Garcia, E. Canabal-Torres
Lecturers: F. Faccio, C. Hidalgo, C. Onate

Professors Emeriti: J. Aguilar-Mora (Distinguished Scholar Teacher), S. Cypess, R. Harrison, R. Lavine (ret.), G. Nemes

The Major

The undergraduate major in Spanish Language, Literatures, and Cultures consists of 36 credits of coursework beyond the intermediate prerequisite level, with an additional supporting area (nine credits). All students will take a core of four courses and a three course literature/culture sequence focused on Spain or Latin America. The remaining coursework will come from one of three options: Literature and Culture, Linguistics and Culture, Language and Culture in Professional Contexts.

Program Learning Outcomes

- Communicate effectively in Spanish in writing with clear evidence of target-language accuracy, organization, and clarity of thought.
- Demonstrate knowledge of the institutions, values, practices, and cultural products of the Spanish-speaking world by comparing/contrasting specific cultural aspects of a specific target culture/artifacts to the United States or between two target cultures/artifacts using level-specific target language norms.
- Conduct research in the fields of language, literature, and cultures in Spanish using appropriate written, oral, and video primary and secondary sources, as possible, in Spanish.

Placement in Courses

http://www.arhu.umd.edu/undergraduate/flpa

Requirements for the Major

Prerequisites: 11 credits (or equivalent knowledge)
Note: Students who receive a grade of "B+" or above in SPAN203 can proceed directly to SPAN207.

SPAN103	Intensive Elementary Spanish	4 credits
SPAN203	Intensive Intermediate Spanish	4 credits
SPAN204	Review of Spanish Grammar	3 credits

Core Sequence: 21 credits (required for all three options)

SPAN207	Reading and Writing *Prereq: SPAN203 with a grade of B+ or higher or SPAN204 or concurrent SPAN204; or equivalent knowledge*	3
SPAN301	Advanced Grammar & Composition I *Prereq: SPAN207 or concurrent SPAN207*	3

SPAN302	Advanced Grammar & Composition II *Prereq: SPAN301*	3
SPAN303	Approaches to Cultural Materials in the Hispanic World *Prereq: SPAN207*	3

SPAN331, **and**	Spanish Culture, Civilization and Literature I: Medieval Times *Prereq: SPAN301 and 303*	9
SPAN332, **and**	Spanish Culture, Civilization and Literature II: Renaissance and Baroque *Prereq: SPAN301 and 303*	
SPAN333	Spanish Culture, Civilization and Literature III: Modern Times *Prereq: SPAN301 and 303*	

- or -

SPAN361, **and**	Latin American Literatures and Cultures I: From Pre-Columbian to Colonial *Prereq: SPAN 301 and 303*	9
SPAN362, **and**	Latin American Literatures and Cultures II: From Independence to Nation Formation *Prereq: SPAN 301 and 303*	
SPAN363	Latin American Literatures and Cultures III: From Modernism to Neo-liberalism *Prereq: SPAN 301 and 303*	

Literature and Culture option: 15 credits
This option provides greater expertise in Spanish or Latin American literature and culture (three 4xx level courses minimum). Students can choose either two commercial Spanish classes OR two translation classes OR two additional 4xx level literature classes.

SPAN4xx	Two 4xx level courses in Spanish	*Prereq: one from SPAN331, 332, 333*	6
SPAN4xx	Latin American Literature and Culture **or**	*Prereq: 361, 362, 363 literature sequence above*	
SPAN316	Practicum in Translation I	*Prereq: SPAN301 and SPAN303*	
SPAN318	Translation of Technical Texts **or**	*Prereq: SPAN316*	
SPAN4xx	Three 4xx level courses in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333, 361, 362, 363 literature sequence above*	9

Linguistics and Culture option: 15 credits
This option provides greater expertise in Hispanic linguistics (three 3xx or 4xx level courses)

SPAN310	Spanish Phonetics	*Prereq: SPAN301 and SPAN303*	3
SPAN425, **and**	Intro Hispanic Linguistics I; **and**	*Prereq: SPAN301 and SPAN303*	3
SPAN426	Intro Hispanic Linguistics II	*Prereq: SPAN425*	3
SPAN4xx	Two 4xx level courses in Spanish or Latin American Literature and Culture *		6

**The approved program in Spanish and Secondary Education requires 2 3xx or 4xx level courses in literature/culture along with the three linguistics courses this option provides.

Language and Culture in Professional Contexts: 15 credits
This option combines business courses with translation courses to provide a better understanding of professional language contexts.

SPAN315 **and**	Commercial Spanish I	*Prereq: SPAN301 and 303*	3
SPAN415	Commercial Spanish II	*Prereq: SPAN315*	3

SPAN316 **and**	Practicum in Translation I	*Prereq: SPAN301 and 303*	3
SPAN318	Translation of Technical Texts	*Prereq: SPAN316*	3

SPAN422 **or**	Cross-cultural Communication; **or**	*Prereq: SPAN315*	3
SPAN4xx	One 4xx level course in Spanish or Latin American Literature and Culture	*Prereq: one from SPAN331, 332, 333, 361, 362, 363 literature sequence*	

Supporting Area
Nine credits in a single area other than Spanish, 6 of which must be at the 3xx or 4xx level, all with the approval of the Spanish advisor. Students should discuss their choice of supporting area with the Spanish advisor early on in their Spanish studies.

Courses for Heritage Learners
Heritage learners and students from homes where Spanish is spoken or who have had in-depth exposure to Spanish take a series of courses designed to enhance their skills:

SPAN206	Review of Oral and Written Spanish for Native Speakers Educated in the US	*Prereq: Native or near native knowledge of and no formal education in Spanish*
SPAN306	Spanish II for Native Speakers	*Prereq: SPAN206*

SPAN307	Oral Communication Skills for Native Speakers of Spanish	*Prereq: Native or near native knowledge of oral Spanish and no formal education in Spanish*

- Placement in courses for heritage learners is determined by speaking with the Spanish advisor.
- Native speakers and all others with the ability to begin coursework at a higher level should speak with the undergraduate advisor for course substitutions.

Students must earn a grade of "C-" or higher in each course applied toward a major or minor in the School of Languages, Literatures, and Cultures. Additionally, an overall GPA of 2.0 in a major or minor is required for graduation.

Study Abroad
For information on study abroad programs see the program advisor and/or the Education Abroad website: www.international.umd.edu/studyabroad.

Requirements for the Minor

Spanish Language and Cultures

School of Languages, Literatures, and Cultures (SLLC)
www.spanish.umd.edu

Information

The minor in Spanish Language and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in linguistic, cultural, and literary aspects of the study of Spanish.

Core Courses Required for the Minor

SPAN207 Reading and Writing in Spanish
SPAN301 Advanced Grammar and Composition I
SPAN303 Approaches to Cultural Materials in the Hispanic World

Other Required Courses

Following completion of the core sequence, students choose **two** courses from the following:

SPAN206 Review of Oral and Written SPAN for Native Speakers Educated in the United States
SPAN302 Advanced Grammar and Composition II
SPAN306 Spanish II for Native Speakers
SPAN310 Spanish Phonetics
SPAN307 Oral Communication Skills for Native Speakers of Spanish

SPAN315 Commercial Spanish I
SPAN316 Practicum in Translation I
SPAN317 Practicum in Translation II
SPAN318 Translation of Technical Texts
SPAN331 Spanish Culture, Civilization and Literature I: Medieval Times
SPAN332 Spanish Culture, Civilization and Literature II: Renaissance and Baroque
SPAN333 Spanish Culture, Civilization and Literature III: Modern Times
SPAN356 Literary Translation I
SPAN357 Literary Translation II
SPAN361 Latin American Literatures and Cultures I: From Pre-Colombian to Colonial Times
SPAN362 Latin American Literatures and Cultures II: From Independence to Nation Formation
SPAN363 Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism
SPAN415 Commercial Spanish II
SPAN417 Interpretation
SPAN425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN426 Introduction to Hispanic Linguistics II: Language In Use
SPAN448 Special Topics in Latin American Civilization
SPAN449 Special Topics in Spanish Civilization

All Spanish literature courses on the 4xx level

- All courses must be taught in Spanish.
- Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors. A grade of "C-" or better is required in each class.
- An overall GPA of 2.0 in the minor is required for graduation.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a University of Maryland study abroad program.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Spanish Language, Business, and Cultures

School of Literatures, Languages, and Cultures (SLLC)
www.spanish.umd.edu

Information

This 15 credit minor will provide students with a solid background in language, culture, and concepts important for business in the Spanish-speaking world.

Core Courses Required for the Minor

SPAN207 Reading and Writing in Spanish
SPAN301 Advanced Grammar and Composition I
SPAN303 Approaches to Cultural Materials in the Hispanic World

Other Required Courses

Following completion of the core sequence, students will complete:

SPAN315 Commercial Spanish I
SPAN415 Commercial Spanish II

All courses must be taught in Spanish.

Native and Heritage Speakers

Native speakers and all others with the ability to begin coursework at a high level should speak with the Undergraduate Advisor. **Heritage learners**, students from homes where Spanish is spoken or who have had in depth exposure to Spanish, are encouraged to take a series of courses designed to enhance their skills.

Transfer Credits

A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a University of Maryland study abroad program.

Eligibility

The minor is open to all students except Spanish majors.

Application Process

Students should meet with the Minor Advisor during walk-in advising hours. The advising hours are always posted at 2211 Jimenez Hall, and are available on the Department of Spanish and Portuguese website, https://sllc.umd.edu/spanish/undergraduate/advising.

Advising

Advisor: Fabian Faccio fabian@umd.edu

To review the academic plan for this major, go to

http://www.arhu.umd.edu/undergraduate/advising/academicplans

Undergraduate Research Experiences

The School of Languages, Literatures, and Cultures has implemented an Annual SLLC Undergraduate Research Forum which allows its outstanding Juniors and/or Seniors to display their research projects. The Forum takes place in late April in the Language House (St. Mary's).

Internships

Each fall semester, SLLC organizes a Language Career and Internship Fair in conjunction with the UMD Career Center. For more information, see the SLLC website: http://www.sllc.umd.edu/.

Honors Program

For information, see http://sllc.umd.edu/spanish/undergraduate/honors.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

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Speech Communication

See the Department of Communication.

Supply Chain Management

See "Logistics, Business & Public Policy."

Teaching and Learning, Policy and Leadership (TLPL)

The Department of Teaching and Learning, Policy and Leadership is one of three newly formed departments within the College of Education. It is a union of former units Curriculum and Instruction (EDCI), Education Policy Studies (EDPS) and Organizational Leadership and Policy Studies (OLPS). Interrelated program areas currently include: Art Integration, Curriculum Theory and Development, Education Policy, Elementary Education, English Education, Literacy Education, Mathematics Education, Middle School Education, Minority and Urban Education, Organizational Leadership, Reading Education, Science Education, Second Language/TESOL, Social Studies Education, Professional Development/Teacher Education, and Sociocultural Foundations of Education.

Most of the College's teacher preparation programs (including elementary, middle, and secondary education) are housed in TLPL. Additional departmental programs encourage thoughtful and responsive explorations of education policies, practices and related social issues. Graduate students are prepared to create and critique alternative courses of action to enhance the quality of education for all persons and to redress the social conditions that restrict collective democratic aspirations.

The Department offers undergraduate and graduate study leading to the Bachelor of Arts (BA), Bachelor of Science (BS), Master of Arts (MA) (thesis and non-thesis options), Master of Education (MEd), Doctor of Education (EdD) and Doctor of Philosophy (PhD).

Curriculum and Instruction - Middle School (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/TLPL
Chair: F. Hultgren (Prof & Chair)
Professors: P. Afflerbach (Prof), P. Campbell (Assoc Prof), D. Chazan (Prof), M. Dreher (Prof), D. Imig (Prof Of Practice, Lecturer), R. Lavine (Assoc Prof, Affil Assoc Prof), J. MacSwan, J. McGinnis (Prof), O. Saracho (Prof), D. Sullivan (Prof), L. Valli (Prof), D. Wiseman (Prof, Prof And Dean)
Associate Professors: S. Benson (Assoc Prof), A. Brantlinger (Assoc Prof), A. Elby (Assoc Prof, Affil Assoc Prof), E. Hutt (Asst Prof), D. Ketelhut (Assoc Prof), M. Martin-Beltran (Aff Asst Res Prof, Assoc Prof), J. McCaleb (Assoc Prof), J. O'Flahavan (Assoc Prof), W. Slater (Assoc Prof), J. Turner (Assoc Prof)
Assistant Professors: T. Clegg (Asst Prof), J. Walkoe (Asst Prof)
Professors Emeriti: M. Chambliss (Assoc Prof Emerita), A. Graeber (Assoc Prof Emerita), W. Holliday (Prof Emeritus), M. Johnson (Prof Emeritus), S. Koziol (Prof, Asst to Dean)

The Major

Teaching and Learning, Policy and Leadership offers undergraduate curricula in Middle School Education that lead to the Bachelor of Science degree and prepare teachers for teaching in middle schools, grades 4-9.

Graduates of the Middle School Math and Science (grades 4-9) program meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

Program Learning Outcomes

1. Middle School teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Association for Middle Level Education – AMLE); state (MSDE); and, institutional standards.

2. Middle School teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Middle School teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Middle School teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (AMLE); state (MSDE); and, institutional standards.

5. Middle School teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry in Chapter 6.

Placement in Courses

The Middle School program includes both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses -- including the yearlong internship -- prior to completion of the selective admissions requirements and full admission to the College of Education.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Collaborating School (i.e., partner school, PDS - Professional Development School).

Pre-Professional/Subject Area Courses	**Credits**
GEOL100/110 - Physical Geology and Laboratory	4
PHYS115 - Inquiry into Physics *or* PHYS121 - Fundamentals of Physics I	4
BSCI103 -The World of Biology *or* BSCI170&171 - Principles of Molecular and Cellular Biology and Lab *or* BSCI122 - Microbes in Society	4
CHEM131/132 - Fundamentals of General Chemistry and Laboratory	4
AOSC200/201 - Weather and Climate with Laboratory	4
MATH212 - Elements of Numbers and Operations	3
MATH213 - Elements of Geometry and Measurement	3
MATH214 - Elements of Probability and Statistics	3
MATH312 - Mathematical Reasoning and Proof for Pre-service Middle School Teachers	3
MATH314 - Introduction to Probability, Data Analysis, and Statistics for Pre-Service Middle School Teachers	3
MATH315 - Algebra for Pre-Service Middle School Teacher	3

One from: **(3-4 credits)**

ANTH220 - Introduction to Biological Anthropology
ASTR100/111 - Introduction to Astronomy and Observational Astronomy Laboratory
or ASTR101 - General Astronomy
ASTR121 - Introductory Astrophysics II – Stars and Beyond
BSCI160&161 - Principles of Ecology and Evolution and Lab BSCI120 Insects
BSCI124/125 - Plant Biology and Laboratory for Non-Science Students
CHEM104 - Fundamentals of Organic and Biochemistry
ENST200 - Fundamentals of Soil Science
GEOG201/211 - Geography of Environmental Systems and Laboratory
PHYS102/103 - Physics of Music and Laboratory
PHYS106/107 - Light, Perception, Photography, and Visual Phenomena and Laboratory
PLSC100 - Introduction to Horticulture
PLSC101 - Introductory Crop Science

Pre-Professional Education Courses	Credits
EDPS210 - Historical and Philosophical Perspectives on Education *or* EDPS 301 - Foundations of Education	3
EDCI280 - Looking Inside Schools and Classrooms	3
EDCI297 - Students, Schooling, and Communities	3
EDHD4XX - Adolescent Development	3
EDHD436 - Cognition and Motivation in Reading: Reading Acquisition for Middle School Students	3
EDCI465 - Teaching Reading in Middle School Content Areas	3

Professional Education Courses	Credits
EDCI360 - Field Experience in Middle School Education	1
EDCI411 - Knowledge, Reasoning, and Learning in Science	3
EDCI413 - Interdisciplinary Teaching in the Middle Grades I	2
EDCI414 - Interdisciplinary Teaching in the Middle Grades II	2
EDCI424 - Equitable Classrooms	2
EDCI425 - Equity and Pedagogy	2
EDCI457 - Teaching and Learning Middle School Mathematics	3
EDCI460 - Student Teaching: Middle School	12
EDCI474 - Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education	2

Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators standards and to attain qualifying scores for the State of Maryland on a test of basic skills (http://www.msde.maryland.gov/MSDE/divisions/certification/certification_branch/testing_information/praxis1.html) and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public school PDS setting.

Advising

Advising is mandatory for all middle school math and science education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2364).

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a public school setting.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see: http://www.education.umd.edu/studentinfo/scholarships.html.

Curriculum and Instruction - Elementary Education (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/TLPL
Chair: F. Hultgren (Prof & Chair)
Professors: P. Afflerbach, P. Campbell (Prof), D. Chazan, M. Dreher, D. Imig (Prof Of Practice), J. MacSwan, B. Malen (Prof), J. McGinnis, J. Rice (Prof & Assoc Dean), O. Saracho, D. Sullivan, L. Valli, D. Wiseman (Dean)
Associate Professors: J. Ahn, A. Brantlinger (Assoc Prof), R. Croninger, A. Elby (Assoc Prof, Affil Assoc Prof), E. Hutt (Asst Prof), D. Ketelhut, M. Martin-Beltran (Aff Asst Res Prof, Assoc Prof), J. McCaleb, J. O'Flahavan, M. Peercy (Assoc Prof), W. Slater, J. Turner
Assistant Professors: T. Brown, T. Clegg, J. Walkoe
Affiliate Professors: E. Redish
Affiliate Associate Professors: S. Benson, R. Lavine
Professors Emeriti: M. Chambliss, B. Finkelstein, A. Graeber, W. Holliday, M. Johnson, S. Koziol, S. Selden

The Major

Teaching and Learning, Policy and Leadership offers an undergraduate curriculum in elementary education that leads to the Bachelor of Science. Courses offered in this program may be found under the following acronyms: EDCI, and TLPL. Graduates of the Elementary Education program are prepared to teach grades 1 through 6, and meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education (MSDE).

NOTE: The Elementary Education program is currently under review. Consult an advisor in the Office of Student Services (1204 Benjamin) for additional information.

Program Learning Outcomes

1. Elementary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (Association for Childhood Education International, ACEI), state (MSDE), and institutional standards.

2. Elementary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Elementary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Elementary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (ACEI), state (MSDE), and institutional standards.

5. Elementary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry.

Placement in Courses

The Elementary Education program includes both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. To be eligible to enroll in professional sequence courses during the Fall semester, prospective majors must submit a completed application form by May 1st of the preceding Spring semester. Teacher candidates will not be permitted to enroll in professional sequence courses -- including the yearlong internship -- prior to completion of the selective admissions requirements and full admission to the College of Education.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admission requirements and be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators and to attain qualifying scores for the State of Maryland on a test of basic skills and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience is the yearlong internship, which takes place in a Professional Development School.

		Credits
	The Gateway Requirements for entrance into the Elementary Teacher Education program include:	
BIOSCI	Biological Science/Lab	4
PHY SCI	Physical Science/Lab	4
MATH212	Elements of Numbers and Operations	3
MATH213	Elements of Geometry and Measurement	3
EDCI280	Looking Inside Schools and Classrooms*	3
	**minimum grade, "B-"*	
	NOTE: *The 14-16 credits of math and science must be completed with a minimum grade of "C-" in each course and an overall GPA of 2.7.*	
	Courses which double count with the General Education Program	
	Courses which may satisfy the university's general education requirements and which are required in the Elementary Education program of studies follow:	
HIST200	History of the United States to 1865	3
BIO SCI	Biological Science/Lab Gateway Requirement	4
PHY SCI	Physical Science/Lab Gateway Requirement	4
SOC SCI	Social Science	3
	Recommended social science course options:	
GEOG100	Introduction to Geography	
GVPT170	American Government	
PSYC100	Introduction to Psychology	
SOCY100	Introduction to Sociology	
	Other Pre-Professional Requirements:	
EDCI443	Literature for Children and Youth	3
MATH214	Elements of Probability and Statistics	3
SOCY230	Sociological Social Psychology, **OR**	3
PSYC221	Social Psychology	
EDPS301	Foundations of Education, **OR**	3
EDPS201	Education in Contemporary American Society, **OR**	
EDPS210	Historical and Philosophical Perspectives on Education	

EDHD411	Child Growth and Development	3
Area Courses	Area of Emphasis chosen from the following areas: World Language, Literature, Mathematics, Science, and Social Studies** ***The Student Services Advising Office has detailed information regarding each area of emphasis. All pre-professional course work must be completed with a "C-" or better.*	18
	Professional Education Courses:	
EDCI488R	Language and Literacy Development in Schools/Communities	3
EDSP499F	Teaching Students w/ Disabilities in Elementary Classrooms	3
EDCI489B	Field Experience in Elementary Education	1
EDCI397	Principles and Methods of Teaching in Elementary Schools	3
EDCI362	Promoting Skilled and Motivated Readers I	3
TLPL306	Fine Arts Integration in Elementary Classrooms	3
EDCI322	Curriculum and Instruction in Elementary Ed.: Social Studies	3
EDCI489C	Field Experience in Elementary Education	1
	Year Long Internship	
EDCI352	Curriculum and Instruction in Elementary Ed.: Mathematics	3
EDCI363	Promoting Skilled and Motivated Readers II	3
EDCI372	Curriculum and Instruction in Elementary Ed.: Science	3
TLPL446	Language Variation and Multilingualism in Elementary Classrooms	3
TLPL418	Teaching Residency	3
EDCI364	Culturally Responsive Language Instruction	3
EDCI385	Digital Learning Tools	1
TLPL418	Teaching Residency	9

NOTES:

- All pre-professional and professional courses must be completed with a grade of "C-" or better.
- All courses must be completed before the year-long internship unless an exception has been approved by the Student Services Advising Office.
- A passing score on Praxis II is required before enrollment in the teaching internship.

Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on a test of basic skills and the Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Professional Development School (PDS)/collaborating partner school.

Advising

Advising is mandatory for all elementary education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2364).

Fieldwork Opportunities

EDCI280 (*Looking Inside Schools and Classrooms*) typically is taken during the sophomore year. This course, which is part of the gateway requirements for admission to the Elementary Education Teacher Education Program, provides an exploration of teaching in the public schools. This course includes a three hour per week field component.

Internships

During the senior year of the program, teacher candidates complete a yearlong internship in a network of professional development school settings (PDS Networks). These sites reflect the linguistic, ethnic and economic diversity that is characteristic of the Greater Baltimore-Washington D.C. region. For additional information about the yearlong internship, see the College of Education entry.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see: http://www.education.umd.edu/studentinfo/scholarships.html.

Curriculum and Instruction - Secondary Education (EDCI)

College of Education
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/TLPL
Chair: F. Hultgren (Prof & Chair)
Professors: P. Afflerbach, P. Campbell, D. Chazan, M. Dreher, D. Imig (Prof Of Practice), J. MacSwan, B. Malen (Prof), J. McGinnis, J. Rice (Prof, Prof & Assoc Dean), O. Saracho, D. Sullivan, L. Valli, D. Wiseman (Dean)
Associate Professors: A. Brantlinger (Assoc Prof), R. Croninger, A. Elby (Assoc Prof, Affil Assoc Prof), D. Herschbach, E. Hutt, D. Ketelhut, M. Martin-Beltran (Aff Asst Res Prof, Assoc Prof), J. McCaleb, J. O'Flahavan, M. Peercy (Assoc Prof), W. Slater, J. Turner
Assistant Professors: T. Clegg, J. Walkoe
Affiliate Professors: E. Redish
Affiliate Associate Professors: S. Benson, R. Lavine

Professors Emeriti: M. Chambliss, B. Finkelstein, A. Graeber, W. Holliday, M. Johnson, S. Koziol, S. Selden

The Major

The Department of Teaching and Learning, Policy and Leadership offers undergraduate curricula in secondary education that lead to the Bachelor of Science or Bachelor of Arts degree and prepares teachers in various subject areas for teaching in middle schools, secondary schools (grades 7-12), and PreK-12 settings (Art and World Languages).

Multiple pathways are available for individuals who are interested in teaching at the secondary level:

The Dual Major option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling;

The five-year Integrated Master's with certification program. See http://www.education.umd.edu/MCERT/.

Graduates of the Secondary Education programs meet the requirements for certification in Maryland and additional states that are affiliated with the Interstate Reciprocity Agreement through the Maryland State Department of Education.

Note: The Mathematics Education and Science Education programs are currently under review. For more information, please visit the Terrapin Teachers website http://terrapinteachers.umd.edu/.

Program Learning Outcomes

1. Secondary Education teacher candidates have in-depth knowledge of the subject matter that they teach as described in professional (e.g., National Council of Teachers of English - NCTE, National Council of Teachers of Mathematics - NCTM, etc.); state (MSDE); and, institutional standards.

2. Secondary Education teacher candidates can effectively plan classroom-based instruction or activities for their roles as teachers. Candidates' knowledge, skills, and dispositions are applied effectively in practice.

3. Secondary Education teacher candidates practice evidence-based decision-making through the use of assessment as well as the critical interpretation of research and inquiry in order to improve educational practice. They accurately assess and analyzes student learning, make appropriate

adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

4. Secondary Education teacher candidates demonstrate understanding of learners and their social and cultural contexts with a global perspective and intentional sensitivity to other cultures. They are able to work with students, families, and communities in ways that reflect the dispositions expected of professional educators as delineated in professional (e.g., NCTE, NCTM, etc.); state (MSDE); and, institutional standards.

5. Secondary Education teacher candidates competently integrate technology in instruction to support student learning and develop data-driven solutions for instructional and school improvement. They demonstrate proficiency in each of the seven *Maryland Teacher Technology Standards*.

Academic Programs and Departmental Facilities

In addition to the double major program, the Department of Teaching and Learning, Policy and Leadership offers a Five-Year Integrated Master's with Certification Program (IMCP). This program is intended for talented undergraduates with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. As undergraduates, teacher candidates are double majors in both secondary education and their content area. While double majors, undergraduates complete a minimum of 12 credits in professional education studies related to teacher certification requirements. In their junior or senior year they apply to the graduate program. If they are admitted to the graduate program they enroll in a full-year internship. These individuals will also complete graduate-level professional studies that make them eligible for initial teacher certification and the Master's of education degree.

Information about this secondary education program option is available at http://www.education.umd.edu/Academics/Programs/teacher_education/TECGprograms.html.

Admission to the Major

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry in Chapter 6.

Placement in Courses

The Secondary Education programs include both pre-professional and professional education course work. Before undergraduates may enroll in courses identified as part of the professional sequence, they must complete the selective admissions requirements and be fully admitted to the College of Education's Teacher Education program. Admission procedures and criteria are explained in the College of Education entry. Teacher candidates will not be permitted to enroll in professional sequence courses -- including the yearlong internship -- prior to completion of the selective admissions requirements and full admission to the College of Education.

Requirements for the Major

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before undergraduates may enroll in professional education course requirements they must be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a Collaborating School (i.e., partner school, PDS - Professional Development School).

Curriculum and Instruction offers a variety of secondary education programs-tracks leading to the Bachelor of Science and Bachelor of Arts degrees. Teacher candidates who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Curriculum and Instruction program advisor for updated information.

Foreign-Language Requirement, Bachelor of Arts Degree

Beginning fall 2011 high school language will no longer place undergraduates in foreign language classes nor exempt individuals from taking the foreign language placement exam. All teacher candidates planning to study a foreign language will be required to take a foreign language placement test. This test is used to determine the appropriate placement prior to course registration. For more information, contact the Office of Student Affairs in the College of Arts and Humanities at arhuadvising@umd.edu or 301-405-2108.

Art Education (pre K-12)

The Art Education curriculum is designed to prepare individuals to teach art in elementary through secondary schools. It provides prospective art teachers with a knowledge base about the theories and best practices relevant to effective pedagogy, as well as current education and art education goals and standards. Teacher candidates admitted to Art Education complete the Bachelor of Arts and are required to have an academic content major.

For more information on the sequence of pre-professional and professional courses, consult the Curriculum and Instruction program advisor.

		Credits
	Pre-Professional/Subject Area Courses	
	Note: Course Sequencing is under review.	
ARTT150	Introduction to Art Theory	3
ARTT100	Two Dimensional Design Fundamentals	3
ARTT110	Elements of Drawing I	3

ARTH200	Art of the Western World to 1300	3
ARTH201	Art of the Western World after 1300	3
ARTH	300-400 level	6
ARTT200	Three-Dimensional Art Fundamentals	3
ARTT210	Elements of Drawing II	3
ARTT320	Elements of Painting	3
ARTT418	Advanced Drawing Studio	3
ARTT428	Advanced Painting Studio	3
EDCI407	Practicum in Art Education: Three Dimensional *(Spring only)*	3
	One from:	3
ARTT340	Elements of Printmaking: Intaglio	
ARTT341	Elements of Printmaking: Woodcut and Relief	
ARTT342	Elements of Printmaking: Collagraphy	
ARTT343	Elements of Printmaking: Screen Printing	
ARTT344	Elements of Printmaking: Lithography	

Pre-Professional/Education Courses

EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	
EDPS301	Foundations of Education	3
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	

Professional Education Courses

EDCI405	Art Education Methods I *(Spring only)*	3
EDSP470	Introduction to Special Education	3
EDCI403	Teaching Art Criticism and Aesthetics *(Fall only)*	3
EDCI400*	Field Experience in Art Education *(Fall only)*, **and**	1
EDCI423*	Art Education Methods II *(Fall only)*	3
EDCI406	Technology and Two-Dimensional Art *(Fall only)*	3
EDCI401	Student Teaching in Elementary Schools: Art	6
EDCI402	Student Teaching in Secondary Schools: Art	6
EDCI404	Student Teaching Seminar: Art Education	3

**EDCI400 and EDCI423 taken concurrently*

English Education (Grades 7-12)

Undergraduates who complete the English Education curriculum receive the Bachelor of Arts degree and meet the MSDE requirements for the Professional Eligibility Certificate. Teacher education candidates admitted to English Education are required to have an academic content major and must complete the following program requirements. Please check with the ENGL department regarding specific coursework.

		Credits
	Pre-Professional/Subject Area Courses	
FRGN LANG	Foreign Language *(Intermediate mastery of a modern or classical language is required.)*	8
ENGL280	Introduction to English Language	3
ENGL301	Critical Methods in the Study of Literature	3
ENGL428	Seminar in Language and Literature	3
	One from:	3
COMM107	Oral Communication: Principles and Practices	
COMM125	Introduction to Interpersonal Communication	
COMM220	Small Group Discussion	
	One from:	3
COMM230	Argumentation and Debate	
COMM330	Argumentation and Public Policy	
COMM383	Urban Communication	
COMM402	Communication Theory and Process	
	One from:	3
ENGL101*	Academic Writing	
ENGL101H*	Honors Composition	
	One from:	3
ENGL201	Western World Literature, Homer to the Renaissance	
ENGL202	Western World Literature, Renaissance to the Present	
	One from:	3
ENGL304	The Major Works of Shakespeare	
ENGL403	Shakespeare: The Early Works	
ENGL404	Shakespeare: The Later Works	
	One from:	3
ENGL384	Concepts of Grammar	
ENGL383	The Uses of Language	
ENGL385	English Semantics	
ENGL482	History of the English Language	
ENGL483	American English	

ENGL484	Advanced English Grammar	
ENGL486	Introduction to Old English	
ENGL489	Special Topics in English Language	
	One from:	3
ENGL391	Advanced Composition	
ENGL393	English Technical Writing	
ENGL493	Advanced Expository Writing	
	One from:	
ENGL487	Foundations of Rhetoric	3
COMM360	The Rhetoric of Black America	
COMM401	Interpreting Strategic Discourse	
COMM453	The Power of Discourse in American Life	
	British and American Literature:	15
	one upper-level course in each of five out of the following six areas to be taken during the sophomore and junior years; one of these five courses must be in American Literature (15 credits total)	
	1. Medieval Literature	
	2. Renaissance Literature other than Shakespeare	
	3. Restoration or 18th Century Literature	
	4. 19th Century British Literature	
	5. American Literature before 1900	
	6. 20th Century British or American Literature	
	Elective:	
ENGL	ENGL Elective Women or Minority course	3

**If exempt from ENGL101, majors are required to take ENGL291 Intermediate Writing or ENGL294 Introduction to Creative Writing.*

Pre-Professional/Education Courses

EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	

Professional Education Courses

EDCI466	Literature for Adolescents *(Spring only)*	3
EDCI467*	Teaching Writing *(Fall only, Senior Year)*	3
EDCI416	Teaching and Learning om Secondary Education: English *(Fall only, Junior Year)*	3
EDCI417	Bases for English Language Instruction	3
EDCI447*	Field Experience in English Teaching	1
EDCI440**	Internship Seminar in Secondary Education: English	1
EDCI441**	Internship in Secondary Schools: English	12
EDCI474	Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education	2
	**EDCI447 and EDCI467 taken concurrently*	
	***EDCI440 and EDCI441 taken concurrently*	

For more information on the sequence of pre-professional and professional courses, consult the Curriculum and Instruction program advisor.

World Language Education (Grades 7-12)

The World Language (WL) Education curriculum is designed for prospective world language teachers in grades 7-12 who have been admitted to the TLPL Teacher Education Program. Currently, admission is open to qualified candidates seeking teacher certification in Spanish, French, Russian, Italian, Chinese and German. Other languages might be added later for teacher certification. Teacher candidates enrolled in world language education are required to have an academic content major. Consult with an advisor in Curriculum and Instruction for further information.

A minimum of six hours of intermediate-level language course work in the major language must precede the required 300-400 level courses. The latter are comprised of a minimum of 30 hours of prescribed course work that includes the areas of reading strategies, grammar and composition, conversation, literature, civilization and culture, and linguistics. Teacher candidates must also take a minimum of nine hours (three courses) of electives in a related area. The second area of concentration must be approved by a FL advisor.

In addition to all coursework, teacher candidates must earn an Advanced Low score on the ACTFL oral proficiency exam in their corresponding foreign language. Majors in Russian, Italian, and Chinese must also earn an Advanced Low score on the ACTFL written proficiency test.

The following requirements must be met with the WL Education program:

		Credits
	Pre-Professional/Subject Area Courses	
Primary WL Area	Intermediate (200 level) courses	6

Primary WL Area	Reading Strategies	3
Primary WL Area	Grammar and Composition (300-400 levels)	6
Primary WL Area	Survey of Literature (300-400 levels)	6
Primary WL Area	Conversation (300-400 levels)	3
Primary WL Area	Literature (400-above levels)	6
Primary WL Area	Culture and Civilization	6
Primary WL Area	Applied Linguistics, OR	3
LING200*	Introductory Linguistics	
ELECTIVES	Electives in Supporting Area/WL-Related Courses (minimum of three courses)	9
	**Applied Linguistics in the Primary WL Area if available; otherwise LING200 may satisfy this requirement; check with your advisor.*	

In almost all instances, Primary WL Area courses must have been completed prior to the Teaching Internship. Any substitutions for the above must be pre-approved by a WL Education Advisor.

Note: *The pre-professional courses vary by subject area. Consult the academic department for the specific course requirements for each language area.*

		Credits
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI410	Methods I: K-12 World Language Methods and Technology *(Fall only)*	3
EDCI433	Advanced K-12 World Language Methods and Technology *(Fall only)*	3
EDCI438	Field Experience in Second Language Education *(Fall only)*	1
EDCI430	Teaching Internship Seminar in Secondary Education: World Language	1

EDCI431	Teaching Internship in Secondary Schools: World Language	12
EDCI474	Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education	2

Mathematics Education (Grades 7-12)

Undergraduates who complete the Mathematics Education curriculum receive the Bachelor of Science degree and meet the MSDE requirements for the Professional Eligibility Certificate. Teacher candidates admitted to Mathematics Education are required to have an academic content major and must complete the following program requirements. Please check with the MATH department regarding specific math courses to be taken.

		Credits
	Pre-Professional/Education Courses	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
EDCI457	Teaching and Learning Middle School Mathematics *(Fall only, Junior Year)*	3
EDCI455	Teaching and Learning in High School Mathematics *(Fall only, Senior Year)*	3
EDCI355	Field Experience in Secondary Mathematics Education *(Fall only, Senior Year)*	1
EDCI450	Internship Seminar in Secondary Education: Mathematics	1
EDCI451	Student Teaching in Secondary Schools: Mathematics	12
EDCI474	Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education	2

Science Education (Grades 7-12)

Please check with the science department regarding specific course work.

Teacher candidates may earn credentials in biology, chemistry, geology, physics or agriculture. Undergraduates admitted to the secondary program in science education must complete a major in their area of specialization. Candidates should consult the respective departments for requirements. For more information, please see www.education.umd.edu/science.

		Credits
	Pre-Professional Education Courses	
EDHD426	Cognition & Motivation in Reading: Reading in Content Areas I	3
EDHD413	Adolescent Development	3
EDCI463	Reading in the Secondary School	3
	One from:	3
EDPS301	Foundations of Education	
EDPS201	Education in Contemporary American Society	
EDPS210	Historical and Philosophical Perspectives on Education	
	Professional Education Courses	
	All areas of science education will be required to complete the following professional education courses:	
EDCI411	Knowledge, Reasoning, and Learning in Science *(Fall only)*	3
EDCI375	Field Experience in Science Education	1
EDCI470	Learning and Teaching in Science *(Fall only, Senior Year)*	3
EDCI471	Internship in Secondary Schools: Science	12
EDCI474	Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education	2
EDCI480	Practices in Secondary School Science Teaching	2

Social Studies Education (Grades 7-12)

The Social Studies Education program is under review. Contact an advisor in 1207 Benjamin Building for updated program information.

Undergraduates in the Social Studies Education program may select an area of concentration in history, geography, or government and politics. Each concentration follows the general requirements of their respective majors in addition to the pre-professional/subject area supporting course work required for certification. Teacher candidates may elect to complete the program for certification in Social Studies by choosing one of three options for completing the program.

Option I: History
This option requires completion of the foreign language requirement and is primarily for those teacher candidates earning their initial degree. Requires 68 semester hours of which 39 credit hours must be in history.

Note:The history major requires completion of UNIV 101 and a foreign language requirement through the intermediate level. See ARHU advising for details.

		Credits
	Pre-Professional/Subject Area Courses	
	Introductory Courses:	
HIST200	History of the United States	3
HIST201	History of the United States	3
HIST100/200	Non-US, prior to 1500 *(see advisor for approved courses)*	3
HIST208	Historical Research and Methods Seminar	3
HIST408	Senior Seminar	3
	History Electives	24
	Out of a total 24 credits :	
HIST	*18 credits must be at the junior/senior level	
	*15 credits must be in a concentration	
	* one course must be non-Western	
	In addition to the required credit hours in history, the social studies education program requires 29 credit hours of course work in geography and the social sciences as outlined below:	
GEOG100	Introduction to Geography	3
GEOG202	Introduction to Human Geography	3
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
	One from:	
GVPT100	Principles of Government and Politics	3
GVPT260	State and Local Government, or	
GVPT280	Comparative Politics and Governments	
GVPT170	American Government	3
SOCY100/105	Introduction to Sociology or Introduction to Contemporary Social Problems	3
PSYC100	Introduction to Psychology	3
ANTH240/260	Introduction to Archaeology or Introduction to Sociological Anthropology and Linguistics	3
	Pre-Professional/Education Courses	
EDPS301	Foundations of Education, or	3
EDPS201	Education in Contemporary American Society, or	

EDPS210	Historical and Philosophical Perspectives on Education	
EDHD413	Adolescent Development	3
EDHD426	Cognition & Motivation in Reading: Reading in the Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Professional Education Courses	
EDCI426	Knowledge, Reasoning, and Learning in Secondary Social Studies *(Fall only, Junior Year)*	3
EDCI427*	Curriculum, Teaching, and Assessment in Secondary Social Studies *(Fall only, Senior Year)*	3
EDCI428*	Field Experience in Secondary Social Studies Teaching *(Fall only)*	1
EDCI421	Student Teaching in Secondary Schools: Social Studies	12
EDCI474	Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education	2
EDCI420	Student Teaching Seminar in Secondary Education: Social Studies)	1
	*EDCI 427 and EDCI428 are taken concurrently	

Option II: Geography

This option is primarily for those teacher candidates earning their initial degree and requires 64 credits of Pre-professional/Subject Area course work. Thirty-five credit hours must be in geography. Nine credit hours of 300 level Gateway courses must be taken in physical geography, human geography, and geographic techniques. The remaining 18 credit hours must include a quantitative methods course and 15 credit hours of upper level systematic geography courses.

		Credits
	Pre-Professional/Subject Area Courses	
	Primary Courses:	
GEOG201	Geography of Environmental Systems	3
GEOG211	Geography of Environmental Systems Laboratory	1
GEOG202	Introduction to Human Geography	3
GEOG212	Introduction to Human Geography Laboratory	1
	Gateway Courses:	
GEOG3xx	one 300 level physical geography course	3
GEOG3xx	one 300 level human geography course	3
GEOG3xx	one 300 level technique course	3

GEOG3xx/4xx	Upper Level Geography Electives	15
GEOG306	Introduction to Quantitative Methods for the Geographic Environmental Sciences	3
	In addition to the required credit hours in geography, the social studies education program requires 29 credit hours of course work in history and the social sciences as outlined below.	
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
GVPT100	Principles of Government and Politics	3
GVPT260	State and Local Government, or	
GVPT280	Comparative Politics and Governments	
GVPT170	American Government	3
HIST201	History of the United States since 1865	3
HIST100/200	HIST (non-Western 100/200 level)	3
PSYC100	Introduction to Psychology	3
ANTH240/260	Introduction to Archaeology or Introduction to Sociological Anthropology and Linguistics	3
SOCY100/105	Introduction to Sociology or Introduction to Social Problems	3
	Pre-Professional/Education Courses	
EDPS301	Foundations of Education, or	3
EDPS201	Education in Contemporary American Society, or	
EDPS210	Historical and Philosophical Perspectives on Education	
EDHD413	Adolescent Development	3
EDHD426	Cognition&Motivation in Reading:Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Professional Education Courses	
EDCI426	Materials & Resources in Social Studies *(Fall only, Junior Year)*	3
EDCI427*	Curriculum and Instruction in Secondary Education - Social Studies *(Fall only, Senior Year)*	3
EDCI428*	Field Experience in Secondary Social Studies Teaching *(Fall only)*	1
EDCI421	Student Teaching in Secondary Schools: Social Studies	12
EDCI474	Inclusion, Diversity, and Professionalism in Secondary Education	2
EDCI420	Student Teaching Seminar in Secondary Education: Social Studies)	1
	**EDCI 427 and EDCI428 are taken concurrently*	

Option III: Government and Politics

The Government and Politics program is under review. Please check with the Government Department regarding specific course work.

This option is primarily for those teacher candidates earning their initial degree. Requires a minimum of 65 credit hours of preprofessional/subject area course work. Thirty-six hours must be in GVPT. At least eighteen of the thirty-six credit hours must be upper-level courses.

All GVPT majors must also complete an approved skills option (a foreign language or three quantitative courses from a select list - see GVPT advising office.)

In addition, the GVPT program is a Limited Enrollment Program (LEP). See GVPT advisor for specific admission requirements.

		Credits
	Pre-Professional/Subject Area Courses	
	Introductory Courses:	
GVPT100	Principles of Government and Politics	3
GVPT170	American Government	3
GVPT241	The Study of Political Philosophy: Ancient and Modern	3
ELECTIVES	GVPT Electives	9
GVPT3xx/4xx	GVPT Upper Level Courses	18
	Social Science Quantitative Courses or Foreign Language (see GVPT advisor)	
	In addition to the required credit hours in GVPT, the social studies education program requires 29 credit hours of course work in history and the social sciences as outlined below.	
HIST201	History of the United States since 1865	3
HIST100/200	Non-Western History 100/200 level	3
ECON200	Principles of Micro-Economics	4
ECON201	Principles of Macro-Economics	4
PSYC100	Introduction to Psychology	3
ANTH240/260	Introduction to Archaeology or Introduction to Anthropology and Linguistics	3
GEOG100	Introduction to Geography	3
GEOG202	Introduction to Human Geography	3
SOCY100/105	Contemporary Social Problems	3

Other Requirements for the Major

An overall grade point average of 2.75 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Foundational Competencies/Model Code of Ethics for Educators standards and to attain qualifying scores for the State of Maryland on a test of basic skills and Praxis II assessments. The test of basic skills is required for admission, and Praxis II is required for the teaching internship and graduation. The culminating experience of the program is the yearlong internship, which takes place in a public school setting.

Requirements for the Minor

Requirements for the Minor Secondary Education

The Minor in Secondary Education provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing or completing the minor desires to enter an education track, the candidate must apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education approved program option. Some of the courses undergraduates take to complete the Minor in Secondary Education may also be applicable in certification options at the graduate level offered through Teaching and Learning, Policy and Leadership. These individuals should consult with an advisor in the Office of Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

Requirements for the Minor in TESOL

The minor in Second Language Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. It includes coursework from Curriculum and Instruction and Human Development. The curriculum provides a foundation in second language learning and pedagogy, adolescent learning, cross-cultural issues and understanding, and curricular and pedagogical issues which support reading and writing in a second language context. Several of the courses include field components that provide candidates with direct experience in working with second language learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

Certificate

Secondary Education Upper Division Certificate

The Certificate Program in Secondary Education is currently under review. Please see an advisor

in Teaching and Learning, Policy and Leadership (TLPL) for more information on this pathway and other pathways to certification.

Advising

Advising is mandatory for all secondary education majors. For more information or to schedule an advising appointment, contact the Office of Student Services (301-405-2364).

Internships

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a publicPDS school setting.

Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

The College of Education also offers a number of scholarships. For more information, see http://www.education.umd.edu/studentinfo/scholarships.html.

Second Language Education

Teaching and Learning, Policy and Leadership (TLPL)

2311 Benjamin Building, 301-405-3324
www.education.umd.edu/TLPL

The minor in Second Language Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. If the undergraduate pursuing the minor desires to enter the ESOL teacher preparation track, the candidate may apply for the Five Year Integrated Program option or the one year MCERT Program option; in either case, satisfactorily completed courses in the minor that meet program requirements will be applied to the certification program requirements. Individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with that program.

The minor in Second Language Education includes coursework from Curriculum and Instruction and Human Development. The curriculum provides a foundation in second language learning and pedagogy, adolescent learning, cross-cultural issues and understanding, and curricular and pedagogical issues which support reading and writing in a second language context. A number of the courses include field components that provide candidates with direct experience in

working with second language learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

Courses required for the minor are:

		credits
EDCI437	English Grammar Pedagogy for Teachers of English Language Learners	3
EDCI432	Issues in the Education of English Language Learners	3
EDHD413	Adolescent Development	3
EDCI434*	Pedagogy of Teaching English Language Learners	3
EDCI435*	Teaching English Language Learners Reading and Writing in the Secondary Content Areas	3
EDCI436	Understanding Cross Cultural Communication for Teaching English Language Learners	3

* courses that include required field experiences

Secondary Education

Teaching and Learning, Policy and Leadership (TLPL)
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/TLPL

The minor in Secondary Education provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing the minor desires to enter an education track, the candidate may apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education (MSDE) approved program option. Some of the courses undergraduates take to complete the Minor in Secondary Education may also be applicable toward certification options at the post-baccalaureate level offered through TLPL. These individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

The secondary education minor includes coursework from Teaching and Learning, Policy and Leadership. The curriculum provides a foundation in adolescent development and education policy and includes an introductory pedagogy course in one of the core secondary areas: English, Social Studies, Mathematics, Science, World Languages. The minor also incorporates coursework to meet the MSDE reading requirements that are part of secondary subject area teacher certification.

Courses required for the minor are:

		Credits
EDHD413	Adolescent Development	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Select one of the following foundation courses:	
EDPS201	Education in Contemporary American Society OR	3
EDPS210	Historical and Philosophical Perspectives on Education OR	
EDPS301	Foundations of Education	
	Select one of the following secondary education introductory methods:	
EDCI416	Teaching and Learning in Secondary Education: English OR	3
EDCI410	Methods I: K-12 Foreign Language Methods and Technology OR	
EDCI457	Teaching and Learning Middle School Mathematics OR	
EDCI411	Knowledge, Reasoning, and Learning in Science OR	
EDCI426	Knowledge, Reasoning, and Learning in Secondary Social Studies	
	Other Electives (optional): EDCI280 - Looking Inside Schools and Classrooms (3) EDCI386 - Experiential Learning (3)	

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better. A cumulative GPA of 2.75 is required for enrollment in the secondary education introductory methods courses (EDCI410, 411, 416, 426, 457). No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.

Secondary Education Certificate

College of Education
1204 Benjamin Building, 301-405-2364
www.education.umd.edu/studentinfo/

The Certificate Program in Secondary Education is currently under review. Please see an advisor in TLPL for more information on this pathway and other pathways to certification.

School of Theatre, Dance, and Performance Studies

School Information

2806 Clarice Smith Performing Arts Center
301-405-6676
http://tdps.umd.edu/

School Administration

Director: L. Smiley
Associate Director: M. Keefe
Director of Undergraduate Studies: A. Mayes

The unique structure of the School of Theatre, Dance, and Performance Studies provides the opportunities of a larger community in which students can interconnect and collaborate between the different degree programs. While the degree programs in the dance and theatre disciplines retain their individuality, the School affords the inter-disciplinary prospects that enable landmark creativity and scholarship to flourish. Dynamic interaction between faculty, staff, and students encourages innovative ideas and new initiatives.

Dance (DANC)

College of Arts and Humanities - School of Theatre, Dance, and Performance Studies
2806 Clarice Smith Performing Arts Center, 301-405-6676
http://tdps.umd.edu
tdps@umd.edu
Director: L. Smiley
Associate Professors: M. Keefe, S. Pearson, P. Widrig
Assistant Professors: A. Fang
Instructors: A. Mayes
Lecturers: P. Jackson
Professors Emeriti: D. Madden, M. Rosen, A. Warren, L. Warren, A. Wiltz
Visiting Faculty: C. Morgan (Asst Art-In-Res)

The Major

The undergraduate curriculum, which leads toward a B.A. degree in Dance, offers students a solid foundation in the core areas of the discipline as well as insights into cross-disciplinary fields of study.

Coursework is designed to help students become skillful, articulate, and expressive movers; to enable students to find their own voice as creative artists, develop the ability to work effectively in a collaborative environment, and to grow in their conceptual understanding of dance as an art form in relation to the other arts.

The cornerstones of the curriculum are foundational coursework in the first two years. The project based learning experiences in the junior and senior years engage students in interdisciplinary and/or cross-cultural work and offer in-depth exploration of a theme from a performance, choreographic, and theoretical perspective. Students select an area of emphasis in performance and choreography, production, or education.

Foundational sequences in technique and in the creative process, which integrate a conceptual understanding of dance as an art form in relation to the other arts, are at the core of the discipline.

Through these fundamental practices of the discipline, students gain, not only necessary skills, but also an embodied knowledge of the field.

The dance faculty is composed of a number of distinguished teachers, choreographers, performers, and scholars, each one a specialist in his or her own field. Visiting artists and guest artists make additional contributions to the program. There are performance and choreographic opportunities for all dance students, ranging from informal workshops to fully mounted concerts both on and off campus.

Courses offered by this department may be found under the following acronym(s): DANC, TDPS

Program Objectives

Our Mission

The University of Maryland School of Theatre, Dance, and Performance Studies advances and transforms the research and practice of theatre, dance, and performance studies through its commitment to excellence and innovative education in the performing arts.

Our Vision

We envision a School that serves as a national model for collaboration, innovation, and entrepreneurship in the performing arts. The undergraduate curriculum, which leads toward a B.A. degree in Dance, offers students a solid foundation in the core areas of the discipline as well as insights into cross-disciplinary fields of study. Coursework is designed to help students become skillful, articulate, and expressive movers; to enable students to find their own voice as creative artists, develop the ability to work effectively in a collaborative environment, and to grow in their conceptual understanding of dance as an art form in relation to the other arts.

Academic Programs and Departmental Facilities

Dance is housed in the Clarice Smith Performing Arts Center, a state-of-the-art performing arts "village" comprised of ten interconnected structures occupying 318,000 square feet and situated on a 17-acre site at the northwest end of the campus. The Center is designed to serve the theatre, music, and dance programs of the University and also houses the Michelle Smith Performing Arts Library. With 30 classrooms, 50 practice and rehearsal rooms, and fully outfitted costume, electric, scenic production, paint, and properties shops, the Center serves more than 5,000 students, 200 faculty and staff, and numerous regional, national, and international audiences and professionals. For further information, visit the Clarice Smith Performing Arts Center website at https://theclarice.umd.edu.

Admission to the Major

An audition is not required to become a dance major. For more information contact the Coordinator of Student Services Susan Miller at smille13@umd.edu.

Requirements for the Major

Students must complete 58 credits. The following courses or areas are required:

- DANC218 (3) Foundations of Technique I
- DANC219 (3) Foundations of Technique II
- DANC318 (3) Foundations of Technique III
- DANC319 (3) Foundations of Technique IV
- DANC179 (2) Movement Integration

6 credits of Dance Styles selected from

- DANC138 (2) World Dance Forms
- DANC228 (2) Ballet I
- DANC229 (2) Ballet II
- DANC328 (2) Ballet III
- DANC329 (2) Ballet IV

- DANC109 (2) Improvisation
- DANC207 (3) The Creative Process
- DANC209 (3) Dance Composition
- TDPS201 (3) Production
- DANC283 (3) Foundations of Dance History
- DANC304 (3) Teaching Dance
- TDPS479 (1) Production Practicum
- DANC488 (4) Project Based Learning (two semesters required)

12 credits of 3xx or 4xx level course work in an area of emphasis in performance and choreography or in production, or education.

Performance and Choreography Area of Emphasis
Students in the Performance and Choreography area are expected to enroll in a technique class each semester and to be actively engaged in experiences that transition them from the classroom to the stage. Opportunities for engagement include auditioning for student, faculty, and guest artist works, showing works in progress at monthly open showings, and auditioning works for performances.

Approved Courses:

TDPS479 Production Practicum (Required--1 credit--This is in addition to the 1 credit required of all majors.)

An additional 11 credits selected from:

- DANC448 (Modern Dance V)*
- DANC449 (Modern Dance VI)*
- DANC468 Modern Repertory (3 credits)
- DANC420 Contemporary Partnering (2 credits)
- DANC466 Laban Movement Analysis (3 credits)
- DANC371 Somatics, (3 credits)
- DANC310 Dance lighting (3 credits)
- DANC399 Practicum in Choreography, Production and Performance III (1-3)
- DANC499 Practicum in Choreography, Production and Performance IV (1-3)
- DANC489 Special Topics in Dance
- Additional courses approved by the program.

*A maximum of a total of 6 credits of Dance 448 and 449 will count toward the 12 credit area requirement.

Production Area of Emphasis

Approved courses:

- TDPS479 (Required - 3 credits) This is in addition to the 1 credit required of all majors.

An additional 9 credits selected from:

- DANC310 Dance Lighting
- DANC410 Topics in Dance Production
- THET116 Fundamentals of Theatrical Design
- THET284 Stage Costume Construction I
- THET371 Scenic Design I
- THET383 Costume Design I
- THET377 Lighting Design I
- THET373 Rendering for the Theatre I
- THET472 Scene Painting
- THET474 Stage Management

Note: THET284, 371, 383, 377, 373, 472, and 474 are permission required courses

Education Area of Emphasis

Approved courses:

- DANC405 (3) Dance Education and Policy
- DANC371 (3) Somatics
- DANC389 (1) Independent Study in Global Movement Practice Research
- DANC466 (3) Laban Movement Analysis

- DANC489F (2) 3xx or 4xx level Global Movement Practice

A grade of "C-" or higher must be attained in all dance courses.

An overall GPA of 2.0 in the major is required for graduation.

Other Requirements for the Major

Mid-Point Assessment

The Mid-Point assessment gives the program a mid-course opportunity for learning outcomes assessment. In preparation for the assessment, students prepare a portfolio that includes a resume, samples of their writing, and a DVD with examples of their work in technique and choreography classes. The Mid-Point assessment is a benchmark requirement in the program. All transfer students, as well as students who declare Dance after their first semester on campus, will be assigned an assessment date when they meet with their Dance advisor to develop an academic plan. Students who do not complete the assessment process in their assigned semester will not be permitted to continue in the major. Completion is defined as submission of a portfolio and participation in a scheduled assessment meeting.

The Dance program has mandatory advising each semester. New, re-entering, and transfer students are expected to contact the program, following their admission to the University, for instructions regarding advising and registration procedures. Although entrance auditions are not required, some previous dance experience is highly desirable.

For additional information about the program contact:

Alvin Mayes
Director of Undergraduate Studies
School of Theatre, Dance, and Performance Studies
2810 Clarice Smith Performing Arts Center
University of Maryland
College Park, Maryland 20742
301-405-3194
amayes@umd.edu

Advising

The College of Arts and Humanities has a dual track advising system where students meet with college advisors to discuss their ARHU and general education requirements and meet with departmental advisors to discuss the major requirements. The Dance Major requires mandatory advising each semester to keep in touch with our student base and assist majors and double majors with curricular and co-curricular choices. Advising procedures and instructions to sign up for an advising appointment can be obtained at the school's main office, or, you may contact:

Susan Miller, Coordinator of Student Services and Academic Advisor
smille13@umd.edu

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Scholarships and Financial Assistance

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts (CAPA) scholarships and other Dance Scholarship Award Funds.

For further information, visit the TDPS website at http://tdps.umd.edu and select "Scholarships and Awards" on the BA Dance page.

THEATRE (THET)

College of Arts and Humanities - School of Theatre, Dance, and Performance Studies
2806 Clarice Smith Performing Arts Center, 301-405-6676
http://tdps.umd.edu
tdps@umd.edu
Director: L. Smiley
Professors: D. Conway, M. Hebert, F. Hildy, H. Huang, S. Reese
Associate Professors: F. Carpenter, L. Felbain, L. Frederik Meer, J. Harding, M. Kachman, E. Lee, B. MacDevitt, L. Smiley
Assistant Professors: J. Barclay Newsham, J. Mezzocchi, L. Nathans
Lecturers: K. Rothman
Professors Emeriti: P. Gillespie, R. Meersman, W. Patterson, R. Pugliese, D. Wagner

The Major

Small classes, diversity, and a close-knit environment promote a strong sense of community within the Theatre major. An extensive production schedule offers students a myriad of opportunities to practice their craft.

A supportive and stimulating environment fosters creative development and spurs achievement. Our comprehensive curriculum embraces the liberal arts approach to theatre study and cultivates skills - discipline, creativity, self-confidence, and critical thinking - that are valuable in all career fields. Students gain a strong foundation in theatre arts and have the opportunity to tailor the degree to their strengths and interests.

Our performance and design/production faculty cluster members are active in their fields (members of Actors Equity and United Scenic Artists), providing students a vital link to the world of professional theatre. Our scholarship faculty cluster members regularly publish and participate at national and international conferences. Situated in close proximity to the vibrant Washington/Baltimore theatre communities, students have ready access to the best of

contemporary and classical productions at more than 80 professional theatres. Through professional affiliations with many of these theatre companies, students enjoy unique opportunities such as internships, workshops, partnership projects, and blended productions.

An audition, portfolio, or interview is not required for admission to the program. Courses offered by this Department may be found under the following acronym(s): THET, TDPS, DANC, AASP, HONR, JAPN, JWST, WMST, ANTH.

Program Objectives

Our Mission

The University of Maryland School of Theatre, Dance, and Performance Studies advances and transforms the research and practice of theatre, dance, and performance studies through its commitment to excellence and innovative education in the performing arts.

Our Vision

We envision a School that serves as a national model for collaboration, innovation and entrepreneurship in the performing arts. The Theatre program offers a balanced liberal arts education that integrates production, design, and scholarship. The B.A. in Theatre seeks to introduce students to the history, theory, and literature of theatre; to offer them insights into the cultural diversity that has shaped the creation of theatrical forms around the world; to allow them to develop their own aesthetic sensibilities and perspectives as an artist and audience member; and to offer them practical training in the areas of theatre craft, which ranges from design, to directing, and to performance.

Program Learning Outcomes

By the end of their undergraduate work, students should be able to demonstrate fundamental knowledge of theatre performance, design, history, craft and literature analysis. They will also be able to demonstrate critical and creative thinking skills and the ability to communicate with both written and spoken word and artistic vision. Students will also develop the ability to interpret and analyze dramatic texts with critical understanding of content and methodology. They will expand their awareness of the basic methods and principles for creating a dialogue between theory and practice. Finally, students will develop the ability to work effectively within a collaborative environment.

Academic Programs and Departmental Facilities

Theatre is housed in the Clarice Smith Performing Arts Center, a state-of-the-art performing arts "village" comprised of ten interconnected structures occupying 318,000 square feet and situated on a 17-acre site at the northwest end of the campus. The Center is designed to serve the theatre, music, and dance programs of the University. The Center also houses the Michelle Smith Performing Arts Library. With 30 classrooms, 50 practice and rehearsal rooms, and fully outfitted costume, electric, scenic production, paint, and properties shops, the Center serves more

than 5,000 students, 200 faculty and staff, and numerous regional, national, and international audiences and professionals. For further information, visit the Clarice Smith Performing Arts Center website at https://theclarice.umd.edu.

Admission to the Major

An audition/portfolio is not required to become a Theatre major. For more information, contact the Coordinator of Student Services Susan Miller at smille13@umd.edu.

Placement in Courses

Many Theatre performance and production courses above the Sophomore level require an audition, interview, and/or permission of the Department.

Requirements for the Major

Requirements for the College of Arts and Humanities include a minimum of 3xx or 4xx level credits and the Global Engagement Requirement. Students in the Theatre major prior to the Fall 2009 semester should consult the unit for prior curriculum requirements.

FOUNDATION SERIES (16 credits):

TDPS201	Introduction to Technical Production
THET116	Fundamentals of Theatrical Design
THET222	Foundations of Acting and Performance
THET223	Text and Context in Western Theatre
TDPS479	Production Practicum (1 credit repeated four times)

**Foundation Series courses may be taken in any sequence.*

**THET222, THET223, one credit of TDPS479, and either THET116 or TDPS201 must be completed by the end of the second semester or 30 credits.*
**TDPS479 (4 - 1 credit courses for a total of 4 credit hours) cannot be taken until TDPS201 is completed.*

**TDPS479 must be completed in 3 different areas - costume, scenic, lighting and sound*

**Students are expected to complete one TDPS479 course by the end of the 2nd semester or 30 credits, and all 4 courses by the end of the 6th semester or 90 credits.*

AREA MENU (18 credits):
Students must take courses from each Area as delineated below. Students may enter the Area Menu after completing appropriate prerequisites.
Performance Area: *3 credits required*
Design Area: *6 credits required; 3 at the 3xx or 4xx level*
History/Theory: *9 credits required; THET390, THET391, 3 at 4xx level*

Performance Area (3 credits required)*: courses marked with an * require an audition. Students may only audition twice for each course requiring an audition for enrollment.*

THET210 Movement for Actors
THET285 The Art of Communication and Presentation
THET310 Voice for the Actor I*
THET324 Acting: Character Development*
THET325 Acting: The Actor's Process Part I*
THET330 Play Directing I
THET360 Voice Archetypes
THET411 Voice for the Actor II*
THET420 Acting IV: Language and the Actor*
THET424 Movement II: Advanced Studies in Movement for the Actor*
THET425 Acting: The Actor's Process Part II*
THET430 Play Directing II
THET451 Musical Theatre Workshop I*
THET452 Musical Theatre Workshop II*

Design/Production Area (6 credits required)*:*
Some courses require departmental or instructor approval
THET273 Theatre Graphics I
THET274 Introduction to Stage Management
THET282 Stage Makeup
THET284 Stage Costume Construction I
THET371 Scenic Design I
THET372 Stage Property Design
THET373 Rendering for the Theatre I
THET377 Lighting Design I
THET380 Sound Design
THET383 Costume Design I
THET384 Stage Costume Construction II
THET457 Advanced Lighting Technology
THET465 History of Fashion for the Theatre
THET470 Advanced Stage Craft
THET471 Design Studio in Scenery
THER472 Scene Painting
THET473 Rendering for the Theatre II
THET474 Stage Management
THET475 History of Art, Architecture, and Décor for the Theatre
THET477 Design Studio in Lighting
THET481 Theatre Graphics II
THET482 Scene Painting II
THET483 Design Studio Costume

History/Theory Area (9 credits; THET390, THET391, 3 must be at the 4xx level):
THET390 Theatre History I
THET391 Theatre History II

THET408 Seminar: Theory and Performance Studies
THET488 Special Topics in Theatre History Before 1800
THET489 Special Topics in Theatre History from 1800 to Present

All seminars offered at the 4xx/6xx level require undergraduate students to obtain permission from the instructor and to have completed either THET488 or 489. This includes: THET408/608, THET410/610, THET486/686, THET487/608, THET498/698.

SUPPORTING COURSES (21 credits):
12 Supporting credits must come from THET courses; 15 credits of Supporting Courses must be 3xx or 4xx level coursework. Supporting course credits may come from the Performance, Design/Production, or History/Theory Area menus OR any combination of the four menus. Students may also petition to their advisor for other suitable courses to be accepted, conditional on course work relating to their area of focus. For course prerequisites contact the Department that is offering the course or check Testudo online (testudo.umd.edu/).

For a complete listing of Supporting Courses check the Undergraduate page of the Theatre website at http://tdps.umd.edu/.

Major requirements include 55 credits of course work in Theatre. 46 credits of these must be THET and 9 Supporting Courses may come from approved courses outside the unit. Of the 55 credits, at least 28 credit hours must be 3xx or 4xx level. No course with a grade less than "C-" may be used to satisfy major or supporting area requirements. An overall GPA of 2.0 in the major is required for graduation. No course for the major may be taken Pass/Fail or Audit.

Other Requirements for the Major

As the Area and Supporting Course Menus do not require specific course choices, students may select courses according to their interests and abilities. In consultation with their advisor, students may choose to tailor their degree and create a focus in a specific area of interest to prepare them for the profession or entrance to graduate school.

Advising

The College of Arts and Humanities has a dual track advising system where students meet with college advisors to discuss their general education and college requirements and with departmental advisors to discuss their major requirements. The Theatre major requires mandatory advising each semester to keep in touch with our student base and assist majors and double majors with curricular and co-curricular choices. Advising procedures and instructions to sign up for an advising appointment can be found on the TDPS website at http://tdps.umd.edu and under the heading "BA Theatre."

Or, you may contact:

Susan Miller, Coordinator of Student Services and Academic Advisor
smille13@umd.edu

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Internships

Theatre majors may register for up to 6 credits of internship work under the THET286 or THET386 course number. Internships may be done during the academic year or during the summer. Internships may be done for credit and salary, or, an internship may be done just for credit. Information about the internship procedure may be found on the Theatre website. Internships are not required but are strongly encouraged.

Scholarships and Financial Assistance

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts (CAPA) scholarships, and various Theatre Scholarship/Awards Funds. For further information visit the TDPS website at http://tdps.umd.edu and select "Scholarships and Awards" on the BA Theatre page.

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

At the spring TDPS commencement ceremony, the Charles B. Hale Award is presented to the two members of the senior class who have done the most for the advancement of dramatic art while undergraduates at the University of Maryland.

Women's Studies (WMST)

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.womensstudies.umd.edu
womensstudies@umd.edu
Chair: R. Muncy (Professor and Interim Chair)
Professors: B. Dill, K. King, R. Zambrana
Associate Professors: E. Barkley Brown, L. Horton-Stallings, M. Rowley, C. Schuler, A. Tambe
Assistant Professors: A. Lothian
Lecturers: A. Hackshaw, J. Vooris (Post-Doc Assoc)
Affiliate Professors: K. Bartol (Management & Organization), J. Chernela (Anthropology), T. Coletti (English), M. Collins (Comparative Literature), P. Collins (Sociology), S. Desai (Sociology), L. Doherty (Classics), J. Donawerth (English), E. Frederiksen (Germanic Studies), J. Freidenberg (Anthropology), J. Hallett (Classics), L. Kauffman (English), F. Keshavarz-Karamustafa (Persian Studies), S. Klees (International Education Policy), J. Lin (International Education Policy), H. Mahmoudi (Bahai Chair for World Peace), C. Mossman (French & Italian), R. Muncy (History), K. O'Brien (Psychology), K. O'Meara (Higher Education), V. Orlando (French & Italian), R. Oster (Germanic Studies), M. Palmer (Entomology), J. Paoletti (American Studies), M. Paolisso (Anthropology), S. Parry-Giles (Communication), S. Ray (English), L. Rosenthal (English), M. Smith (English), L. Steiner (Journalism), N. Stromquist (International and Comparative Education), E. Toth (Communication), O. Wang (English), M. Washington (English), J. Wong (American Studies), M. Zilfi (History)
Affiliate Associate Professors: L. Aldoory (Communication), H. Baer (German), J. Bianchini (History), F. Carpenter (Theatre), T. Chico (English), K. Coles (English), S. Dwyer (Philosophy), C. Eades (French & Italian), J. Enoch (English), J. Farman (American Studies), L. Felbain (Theatre), L. Frederik Meer (Theatre), M. Geores (Geography), M. Grossman (Jewish Studies), C. Hanhardt (American Studies), S. Harley (African American Studies), S. Jelen (English), S. Khamis (Communication), M. Kleykamp (Sociology), J. Koser (Germanic Studies), L. Leslie (Family Science), M. Lindemann (English), C. Lyons (History), S. Madhavan (African American Studies), K. Marsh (Sociology), M. Mason (Languages, Literature and Culture), N. Mirabal (American Studies), Z. Nunes (English), R. Ontiveros (English), S. Parks (American Studies), M. Penrose (Spanish), R. Ray (Sociology), A. Rodriguez (Spanish & Portuguese), K. Rosemblatt (History), D. Sartorius (History), R. Shin (Counseling, Higher Education, and Special Education), M. Sies (American Studies), P. Williams-Forson (American Studies)
Affiliate Assistant Professors: M. Baillargeon (French), L. Bruce (American Studies), L. Doan (Sociology), C. Getrich (Anthropology), A. Lopez (Anthropology), J. Padios (American Studies), T. Sangaramoorthy (Anthropology), C. Steele (Communications), C. Woods (Communications)
Assistant Research Professor: L. Jensen (Aff Asst Res Prof)
Professors Emeriti: E. Beck, A. Bolles, S. Kim, C. Moses, D. Rosenfelt

The Major

Women's Studies is an interdisciplinary field of inquiry analyzing structures of power, especially as they are grounded in gender, race, sexuality, ethnicity, nationality, ability, and other

inequalities, and as they configure historical and contemporary struggles for social change. The department sees itself as a force for change in the world, change which leads toward intellectual freedom, social justice, and equality for all people. We do this by providing an outstanding education in women, gender, race, and sexuality studies through excellent teaching, engaged mentoring, path-breaking research and scholarship, and dedicated community service.

The Women's Studies major offers students a coherent but flexible program of study examining scholarship and theory on the history, status, contributions, and experiences of women in diverse cultural communities; the lives, experiences, identities, and representations of lesbian, gay, bisexual, and transgender people; the significance of gender as a social construct and as an analytical category; and an understanding of race as a structural and historical formation in the context of power.

The B.A. degree prepares students for work in a wide range of areas, including non-profit management, social justice advocacy, law, health-related fields, student affairs, and government and public policy. We seek to develop a new generation of scholars and leaders who, with us, will work to acknowledge, understand, and critically interrogate human differences.

To achieve these goals each student meets every semester with an academic advisor to plan a course of study tailored to individual interests and goals.

In addition to the B.A. in Women's Studies, the department also offers two certificate programs and two minors.

Courses offered by this department may be found under the following acronyms: WMST, LGBT.

Program Learning Outcomes

Students are expected to fully engage with the curriculum and the opportunities presented for learning and research. Having completed the Women's Studies degree program, students should have acquired the following knowledge, skills, and practices:

- An ability to critically analyze issues related to women, race/ethnicity, gender, sexuality, and class
- A demonstrated engagement with the practices of feminist, critical race, and LGBTQ social action
- An ability to do independent research using appropriate methods
- An ability to use effective forms of communication

Academic Programs and Departmental Facilities

The Women's Studies Multimedia Studio is a multi-purpose event space and lab dedicated to fostering connections between Women's Studies and digital humanities by engaging issues of identity and difference through art, performance, media activism, and interdisciplinary scholarship.

Requirements for the Major

Students will earn a total of 39-42 credit hours, distributed as indicated below. Drawing from approximately fifty courses, many of which are cross-listed with other academic units, students will have the opportunity to design an emphasis within the major relevant to their special interests. A number of courses may count in more than one category. At least 30 credits must be at or above the 3xx level. No course with a grade less than "C-" may be used to satisfy the major. An overall GPA of 2.0 in the major is required for graduation. Students will design their programs in consultation with a Women's Studies advisor.

	Foundation Courses (18 credit hours)	**Credits**
WMST200	Introduction to Women's Studies: Women and Society, **OR**	3
WMST250	Introduction to Women's Studies: Women, Art & Culture	3
WMST300	Feminist Reconceptualizations	3
WMST350	Feminist Education Practicum and Analysis, **OR**	6
WMST380	Women's Studies Field Work and Analysis	6
WMST400	Theories of Feminism	3
WMST488	Senior Seminar	3
	Distributive Courses	
	Area 1: Arts and Literature (3 credit hours)	
WMST241	Women Writers of French Expression in Translation *(X-listed as FREN241)*	3
WMST250	Introduction to Women's Studies: Women, Art, and Culture	3
WMST255	Introduction to Literature by Women *(X-listed as ENGL255)*	3
WMST275	World Literature by Women *(X-listed as CMLT 275)*	3
WMST281	Women in German Literature and Society *(X-listed as GERM281)*	3
WMST348	Literary Works by Women *(x-listed as ENGL348)*	3
WMST408	Special Topics in Literature by Women before 1800 *(X-listed as ENGL 408)*	3
WMST444	Feminist Critical Theory *(X-listed as ENGL 444)*	3
WMST448	Special Topics in Literature by Women of Color* *(X-listed as ENGL448)*	3
WMST458	Special Topics in Literature by Women after 1800 *(X-listed as ENGL458)*	3
WMST466	Feminist Perspective on Women in Art *(X-listed as ARTH466)*	3
WMST468	Feminist Cultural Studies	3
WMST481	Femmes Fatales and the Representation of Violence in Literature *(X-listed as FREN481)*	3
WMST496	African -American Women Filmmakers* *(X-listed as THET496)*	3
FREN482	Gender and Ethnicity in Modern French Literature	3
	Area II: Historical Perspectives (3 credit hours)	
WMST210	Women in America to 1880 *(X-listed as HIST 210)*	3
WMST211	Women in America Since 1880 *(X-listed as HIST 211)*	3
WMST212	Women in Western Europe, 1750-present *(X-listed as HIST212)*	3
WMST320	Women in Classical Antiquity *(X-listed as CLAS 320)*	3

WMST453	Victorian Women in England, France, and the United States *(X-listed as HIST 493)*	3
WMST454	Women in Africa* *(X-listed as HIST 494)*	3
WMST455	Women in Medieval Culture and Society *(X-listed as HIST495)*	3
WMST456	Women in the Middle East*	3
WMST457	Changing Perceptions of Gender in the US: 1880-1935 *(X-listed as HIST 433)*	3
AASP498W	Black Women in United States History*	3
AMST418J	Women and Family in American Life	3
HIST309	Proseminar in Historical Writing: Women's History	3
	Area III: Social and Natural Sciences (3 credit hours)	
WMST200	Introduction to Women's Studies: Women and Society	3
WMST313	Women and Science *(X-listed as BSCI 313)*	3
WMST324	Communication and Gender *(x-listed as COMM 324)*	3
WMST325	Sociology of Gender *(X-listed as SOCY 325)*	3
WMST326	Biology of Reproduction *(X-listed as BSCI 342)*	3
WMST336	Psychology of Women *(X-listed as PSYC 366)*	3
WMST360	Caribbean Women*	3
WMST410	Women in the African Diaspora*	3
WMST420	Asian-American Women*	3
WMST425	Gender Roles and Social Institutions	3
WMST430	Gender Issues in Families *(X-listed as FMST 430)*	3
WMST436	Legal Status of Women *(X-listed as GVPT 436)*	3
WMST452	Women and the Media *(X-listed as JOUR 452)*	3
WMST471	Women's Health *(X-listed as HLTH 471)*	3
WMST493	Jewish Women in International Perspective*	3
WMST494	Lesbian Communities and Difference*	3
AASP498F	Special Topics in Black Culture: Women and Work*	3
CCJS498	Special Topics in Criminology and Criminal Justice: Women and Crime	3
SOCY498W	Special Topics in Sociology: Women in the Military	3

**Fulfills Women's Studies Multi-Cultural Requirement*

Courses in Cultural Diversity (6 credit hours)
Approved courses are noted with an asterisk in Distributive Courses section above. Courses in this category may overlap with other requirements.

Student-Developed Emphasis (9 credit hours)
Each student, with the help of the Academic advisor, will design an emphasis relevant to their special interests. Courses will ordinarily be drawn from the more than 50 courses approved for the major; in some instances, students may secure permission to include other courses.

Electives
Students should select their electives from the full list of courses for the major. The number of credit hours will vary depending on the individual student's program, but should bring the total number of semester credit hours to at least 39.

Requirements for the Minor

Joint Minor in Black Women's Studies

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.umd.edu/wmst

College of Behavioral and Social Sciences
2169 Lefrak Hall
www.bsos.umd.edu/aasp

See African American Studies Department or Women's Studies Department for faculty roster.

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. No course with a grade less than "C-" may be used to satisfy the minor. An overall GPA of 2.0 in the minor is required for graduation. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more than two courses may count toward a major in African American Studies or Women's Studies.

Foundation courses (6 credits)
WMST263/AASP203 Introduction to Black Women's Studies or
WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
AASP313/WMST314 Black Women in U.S. History

Distributive Requirements (9 credits)
Area I - Comparative or Non-US Course - indicated by a * below (3 credits)
Area II - Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies
THET240 African Americans in Film and Theater

*ENGL362 Caribbean Literature in English
*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

Area III - Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
HIST319 Women and the Civil Rights Movement
*WMST360 Caribbean Women
*WMST410 Women of the African Diaspora
WMST488 Senior Seminar: Black Women in the Public Eye
AASP493 Feminist and Nationalist Thought in the Black Community
WMST498 Black Feminist Thought WMST498 Womanisms and Feminisms: Theories and Methods
AASP483 Gender, Sexuality and the Black Family

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Lesbian, Gay, Bisexual and Transgender Studies
College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.lgbts.umd.edu
lgbts@umd.edu

The LGBT minor in the Department of Women's Studies is a 15 credit program which provides students an opportunity for interdisciplinary study of the lives, experiences, identities, and representations of LGBT people. This course of study provides solid grounding in the major concepts and methods that define studies of sex, gender, and gender identity today.
Any student in good standing in the university may enroll in the LGBT Studies minor. In consultation with the Department of Women's Studies Academic Advisor, students will design a minor program that complements their major field of study.

Minor Requirements:
15 credits: 12 credits are in required courses, while 3 credits are earned in one 3xx or 4xx-level elective course.

A. Required core curriculum for the Minor in LGBT Studies (12 credits)
1. LGBT200 - Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One 1xx or 2xx-level course focused on literature, art, or culture by or about LGBT people, either LGBT265 (X-listed as ENGL265) or LGBT291 (X-listed as CMLT291);

3. One of the following 3xx or 4xx-level courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT350, LGBT407 (X-listed as PHIL407), or LGBT494

(X-listed as WMST494);

4. One of the following upper-division courses focused on literature, art, or culture by or about LGBT people: LGBT359 (X-listed as ENGL359), LGBT459 (X-listed as ENGL459), LGBT465 (X-listed as ENGL465); or LGBT327.
B. Elective course for the Minor in LGBT Studies (3 credits)

A 3xx or 4xx-level elective will complement the required courses. This elective may be a course from categories 3 and 4 above that has not been used to fulfill requirements; or it may be one of the capstone courses in LGBT Studies (LGBT386 or LGBT488), or a course chosen from the list of approved electives for the LGBT Studies program. The list of approved electives is available at www.lgbts.umd.edu/minor.html. A student may also petition to have any course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of Undergraduate Studies in the Department of Women's Studies.
- No course earned with a grade below "C-" will count toward the minor in LGBT Studies.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBT Studies. However, courses taken to complete the minor in LGBT Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six 3xx or 4xx-level credits applied to the minor must be taken at this university.
- Students are advised to declare the minor in LGBT Studies to the Director of Undergraduate Studies in the Department of Women's Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Certificate

The Department of Women’s Studies offers two undergraduate certificate programs. Any student in good standing in the university may enroll in either certificate program by declaring their intention to the Director of Undergraduate Studies in Women’s Studies.

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women and gender. To qualify for this certificate, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 3xx/4xx level.

The Lesbian, Gay, Bisexual, and Transgender Studies Certificate Program provides students an opportunity for interdisciplinary study of the lives, experiences, identities, and representations of

LGBT people. To qualify for this certificate, a student will be required to earn 21 credits in LGBT or related courses.

No grade below the grade of "C-" may count toward a certificate. An overall GPA of 2.0 in the certificate program is required for graduation.

Advising

Advising is mandatory for all majors each semester. Please call 301-405-6827 for an appointment.

Certificate students and minors are also encouraged to consult with the Department of Women's Studies academic advisor prior to registration each semester.

To review the academic plan for this major, go to http://www.arhu.umd.edu/undergraduate/advising/academicplans

Internships

As part of the major, students are required to complete a hands-on, practical learning experience. They may do so through an internship or a feminist pedagogy course.

Students seek internship opportunities in local, state and federal governments, non-profit organizations, policy and research institutions as well as agencies committed to social change. Student internship sites have included: League of Women Voters of Maryland, Sinister Wisdom lesbian literary and art journal, National Organization for Women, Jewish Women International, Institute for Women's Policy Research, Asian Pacific Islander Domestic Violence Resource Project, State of Maryland Lt. Governor's Office, D.C. Rape Crisis Center, the District Alliance for Safe Housing, the Gay, Lesbian, Bisexual, Transgender Community Center of Baltimore and Central Maryland, and Calvert OB/GYN Associates.

Students who complete this requirement through the feminist pedagogy course work closely with a faculty member in an undergraduate course in Women's Studies, studying feminist theories of learning and assisting in the planning and delivery of the course.

Honors Program

The Honors Program is designed to give students the opportunity to pursue an area of passionate academic interest in greater depth than that allowed by formal classes. Honors students engage in rigorous interdisciplinary research under the close supervision and mentorship of a Women's Studies faculty member. Students can be expected to gain a deeper understanding of some aspect of women's, gender, and/or sexuality studies and to develop habits of self-reliance, individual initiative, and critical analysis. The culminating thesis may be a sustained piece of writing or a substantial creative or activist project.

Student Societies and Professional Organizations

Iota, Iota, Iota (Triota) is the Women's Studies Honor Society. This organization strives to maintain feminist values of egalitarianism and inclusiveness. It celebrates the diversity of experiences that are central to Women's Studies. Triota works to promote student research and activism in socio-political issues that affect all minority groups and aims to recognize and promote the academic achievements of students enrolled in Women's Studies and Lesbian, Gay, Bisexual, and Transgender Studies courses.

Scholarships and Financial Assistance

The Novak Family TerpStart Endowed Scholarship is awarded to an undergraduate student participating in the department's Lesbian, Gay, Bisexual, and Transgender Studies Program. For information and requirements, contact the Director of Undergraduate Studies (301-405-7710).

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu.

Awards and Recognition

The Women's Studies Department administers a variety of awards and grants to encourage and recognize outstanding scholarship, research, leadership and service.

Each fall the department awards travel funds to support the participation of undergraduate students in the National Women's Studies Association Annual Conference. Any student in the university who has completed 12 credits of WMST and/or LGBT courses is eligible to apply for the NWSA travel award.

Majors are eligible to apply for Academic Enrichment funds for research travel, participation in academic or leadership conferences and workshops, or other activities that will enhance their education in women's, gender, and/or sexuality studies.

The Laura Nichols Award recognizes student commitment to equality, inclusion, and social change.

Additionally, at its commencement ceremony, the department recognizes graduates who have excelled in academics or in service to the campus and community.

For information on any of these awards, including how to apply, contact the Director of Undergraduate Studies.

World Langauge Education (TLPL)

For more information see Teaching and Learning, Policy and Leadership in Chapter 7.

Chapter 8. Minors

Actuarial Mathematics

Mathematics (MATH)
1117 Mathematics Building, 301-405-5053
www-math.umd.edu

The Department of Mathematics offers a minor in Actuarial Mathematics for students whose majors are not mathematics. The goal of the minor in Actuarial Mathematics is to provide the student with an introduction to statistics in general and actuarial mathematics in particular. This minor is closely related to the minor in Statistics, but its focus is on actuarial mathematics.

16 credits are required for the minor as outlined below:

- MATH241 (4 credits)
- One pair of the following 3-credit courses: (for a total of 6 credits)
  - STAT400/401 or
  - STAT410/420 or
  - STAT410/401
- MATH461(3 credits)
- *Note: MATH240 (4 credits) may be substituted for MATH461*
- STAT470 (3 credits)
- Recommended: MATH424 and/or STAT430

Other issues related to coursework:

- The minor in Actuarial Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a "C-" in each course required for the minor.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and a minor in Actuarial Mathematics.
- No more than two of the courses for the minor in Actuarial Mathematics may be taken at an institution other than the University of Maryland, College Park. In addition, only one of the upper-level courses for the minor may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Ida Chan, Undergraduate Mathematics Advisor (ichan@math.umd.edu).

Advanced Cybersecurity Experience for Students (ACES)

Prince Frederick Hall, 301-314-7414
www.aces.umd.edu
aces@umd.edu

The ACES (Advanced Cybersecurity Experience for Students) Minor is housed in the Honors College but is open to all undergraduate students in all majors. This minor takes a multidisciplinary approach to cybersecurity education in that students gain knowledge about many of the fields that intersect in cybersecurity (e.g., legal and public policy aspects, criminal justice, journalism, and computer science and engineering). With an emphasis on hands-on experiences, students will gain practical skills through coursework, seminars, group projects, internships, and research, both on and off campus.

Students in the ACES Minor will also have opportunities to engage in the larger ACES community, including serving as peer mentors, tutors, and advisors for ACES Living-Learning Program students; participating in educational events; and serving as student leaders on the ACES Student Board. ACES Minor students will also have regular interactions with corporate and governmental leaders in cybersecurity, who will serve as both mentors and professional contacts.

Coursework:

The ACES Minor features a customizable 16-credit curriculum.

Prerequisites

Required for students who have not completed the ACES Living-Learning Program

**HACS201 is waived for students who have completed CMSC216*

Course	Credits
HACS201 Introduction to Unix*	1
HACS202 Group Project in Cybersecurity	3

Required Course

Required for all ACES Minor students

Course	Credits
HAC318 Cybersecurity Professionals Colloquium	1

Electives

Select at least 3 courses. Students may also substitute one or two electives from courses including CCJS418B, CMSC414, CMSC456, CMSC498R, ENEE459C, ENEE459D, ENEE459E, and ENME442.

Course	Credits
HACS402 Applied Security Analysis & Visualization	3
HACS404 Security through Cyber Forensics	3
HACS408 Advanced Seminars in Cybersecurity	3

Experiential Learning

Complete a minimum of 3 and a maximum of 6 credits

Course	Credits
HACS479 Undergraduate Research in Cybersecurity	1-3
HACS498 Cybersecurity Team Problem Solving	3

Notes:

- At the time of application students must have 30 university credits completed (including transfer credit), a minimum cumulative GPA of a 3.0, and at least 4 semesters remaining prior to graduation
- Upon admission to the minor students will become part of the Honors College and are subject to its policies
- Students must maintain a 3.0 cumulative GPA to remain in good standing in the minor per Honors College requirements
- All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better
- A maximum of 2 courses may be used to satisfy the requirements of both a major and a minor

Agribusiness Economics

Agricultural and Resource Economics (AREC)
2200 Symons Hall
www.arec.umd.edu

This minor provides students with economic knowledge and analytical skills to apply to real world problems in agribusiness. The 400-level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis

relevant to business decisions. AREC250 is an introductory course giving students an overview of the subject.

		Credits
AREC240 **OR**	Introduction to Economics and the Environment	3
	OR	
AREC250	Elements of Agricultural & Resource Economics	3
AREC306	Farm Management and Sustainable Food Production	3
AREC404	Applied Price Analysis	3
AREC405	Economics of Production	3
AREC425	Economics of Food Sector	3
AREC427	Economics of Commodity Marketing Systems	3
AREC433	Food and Agricultural Policy	3
AREC435	Commodity Futures and Options	3
AREC422	Econometric Applications in Agricultural and Natural Resource Economics	3
	Please choose five courses from the list above. Nine credits must be at the 300-400 level.	
	Another AREC course can be substituted for one of the courses listed above with permission of the Undergraduate Advisor.	
	Total Credits	**15**

Arabic

School of Languages, Literatures, and Cultures (SLLC)
http://sllc.umd.edu/arabic/

The minor in Arabic (21 credits) provides a solid grounding in Modern Standard Arabic and colloquial Arabic. Students who satisfy the requirements of the minor in Arabic can expect to be able to read, write, and communicate orally in Modern Standard Arabic and one of the Arabic dialects at a level that would allow them to interact with native speakers and perform effectively in a daily environment, watch TV and films in Arabic, engage with authentic texts, write short papers in Arabic, and perform other tasks expected from an Advanced Level learner.

The materials used to further language acquisition are culturally rich resources, and students completing the minor will have become familiar with many of the cultural patterns, social issues, historical events, artistic traditions, and elements of daily life of the people whose cultures are rooted in Arabic. Students interested in pursuing the minor in Arabic should contact the undergraduate advisor, who will be responsible for oversight and record keeping.

Students should declare the minor in Arabic at least one year prior to graduation.

Prerequisites (12 credits):

		Credits
ARAB104	Elementary Modern Standard Arabic I-II	6
ARAB105	Elementary Modern Standard Arabic III-IV	6

No prerequisites are required for students with equivalent knowledge. Placement testing is mandatory.

Courses required for Minor (21 credits):

All prerequisites imply "or equivalent knowledge."

		Prerequisite	Credits
ARAB204	Intermediate Modern Standard Arabic I	ARAB105	6
ARAB205	Intermediate Modern Standard Arabic II	ARAB204	6
ARAB304	Advanced Modern Standard Arabic	ARAB205	3
ARAB305	Advanced Modern Standard Arabic	ARAB304	3
ARABXXX	Additional 3xx or 4xx level course taught in Arabic* **Contact the minor advisor for approved courses*		3
			21

Notes:

- Once credits have been received for a higher-level language focus course, a lower-level course in the same strand may not be taken for credit. (For example, ARAB204 may not be taken after ARAB205).
- In cases where a student has equivalent knowledge, required courses are replaced in consultation with minor advisor. All courses applied to the minor must be taught in Arabic.
- Students who begin their study as heritage speakers must seek the advice and written permission of the advisor before choosing the courses they will use to replace any required minor courses.
- A maximum of 6 credits can be applied to the minor from courses taken at other institutions. No more than 6 credits of the minor may be used to satisfy the requirements of a major. No courses in the minor may count toward another minor.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to: www.arhu.umd.edu/undergraduate/academics/minors

Archaeology

Professor Lillian Doherty
ldoherty@umd.edu
301-405-2022
http://classics.umd.edu/academicprograms/undergraduate/minor

The interdisciplinary minor in Archaeology is intended to introduce students to the global importance of archaeology and its value as a mode of scholarly inquiry.

The minor requires a minimum of 15 credits and consists of three elements:

1. A required 3-credit, 3xx-level course, Archaeological Methods and Practice, cross-listed as ANTH305, CLAS305, and ARTH305, to be offered once each year. There is a one-course prerequisite, to be chosen from among the following: ANTH240, CLAS180, or ARTH200.
2. 3 to 6 credits in approved courses offering fieldwork experience. There are many options at UMCP, including historical archaeology courses in ANTH that do not require travel abroad. Study-abroad programs at other institutions must be approved in advance by a UMCP faculty member with the appropriate specialization.
3. 6 to 9 credits in supporting courses involving subject matter that includes a significant focus on archaeology (in, e.g., ARCH, ANTH, ARTH, CLAS, HIST, JWST, LARC, RELS). A list of approved courses will be made available to students interested in the minor. The list will be updated as course offerings change.

Advising will be coordinated in any given year by the faculty member who is teaching the required, cross-listed course. Contact Prof. Lillian Doherty in the Classics Department for information.

As required for all minors, at least 9 credits overall must be in courses at the 3xx or 4xx level. The grade point average in the minor must be at least 2.0 and no grade below "C-" can be counted toward the minor. A maximum of 6 credits may be counted toward both the minor and the student's major. A maximum of 6 credits earned at other institutions may be counted toward the minor.

Army Leadership Studies

Minor in Army Leadership Studies

2100 Reckord Armory, 301-314-9939
www.armyrotc.umd.edu
armyrotc@umd.edu

The Army Leadership Studies program promotes the development of undergraduate students on small group leadership. Students will walk away with an in-depth understanding of Small Unit Tactics, Land Navigation and Field Training, Operations and Logistical Planning, Team

Building, and Peer-to-Peer counseling. The core courses in the Minor are sequenced to meet the increasingly complex sets of outcomes-based instruction across cognitive, personal development, and group/organizational domains.

The Army Leadership Studies minor consist of the courses identified below and is open to any student at the University of Maryland. Students of all majors will be eligible to apply and prior military or ROTC experience is not required. Students seeking a minor in Army Leadership Studies must be approved by the Director of Army ROTC.

ARMY 301 Advanced Military Leadership I (3 credit hours)

ARMY 302 Advanced Military Leadership II (3 credit hours)

At the 300 level, students learn the application of Army leadership strategies, critical decision making methodologies, physical and mental fitness excellence. Includes a laboratory period in applied leadership, common military tasks and physical fitness, as well as a three day field exercise.

ARMY 401 Advanced Military Leadership III (3 credit hours)

ARMY 402 Advanced Military Leadership IV (3 credit hours)

At the 400 level, students learn the military system and code of ethics in the military environment is studied. Topics include code of conduct during all forms of military operations, the Geneva Conventions and the ethical decision making process. Also includes a laboratory in applied leadership skills, fitness excellence and two field exercises.

Electives

HIST 224 Modern Military History, 1494-1815 (3 credit hours). Survey of the military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the dynastic wars of the Valois and Habsburgs to the national wars of the French Revolution and Empire.

Or

HIST 225 Modern Military History 1815-Present (3 credit hours). The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present.

Art History

Art History and Archaeology (ARTH)
1211B Parren J. Mitchell Art-Sociology Building, 301-405-1479
www.arthistory.umd.edu

The minor in Art History introduces students to a range of art-historical periods, problems, and methodologies and is intended at once to broaden and deepen the student's knowledge of arts and humanities. A total of 18 credits is required.

1. Nine credits of 2xx-level surveys in the history of art are required. Choose any three (3) broad surveys from among the following 3-credit courses:

- ARTH200: Art and Society in Ancient and Medieval Europe and the Mediterranean
- ARTH201: Art and Society in the West from Renaissance to the Present
- ARTH250: Art and Society in the Ancient American World
- ARTH255: Art and Society in the Modern American World
- ARTH275: Art and Society in Africa
- ARTH290: Art and Society in Asia

2. In addition, nine (9) credits of 3xx or 4xx art history courses are required. Choose any three (3) (3xx- or 4xx-level) 3-credit courses in Art History (ARTH prefix).

A total of six (6) credits may be transferred into the minor from other institutions or programs. These transferred credits include those from study-abroad programs. Study-abroad credit requires the prior approval of the Director of Undergraduate Studies.

All courses presented for the minor must be passed with a grade of "C-" or better.

An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Asian American Studies

Asian American Studies Program (AAST)

2117 Susquehanna Hall, 301-405-0996
www.aast.umd.edu
aast@umd.edu

Director: Janelle Wong, Ph.D.

In the Asian American Studies Program (AAST), students undertake an interdisciplinary and critical study of race, immigration, and political and social representation through examination of

the experiences of Asian Americans. Students study the experiences of Asian Americans compared to and connected with other groups in the United States, as well as situated within a global and transnational context. Through this approach, students examine the histories, communities and cultures of Asian Americans as both distinctive and connected to the broader themes for diversity, ethnicity, race, gender, sexual orientation and migration in the Americas. AAST offers a 15 credit-hour minor. For the minor, courses may be cross-listed in other departments and some may satisfy general education requirements.

Minor Requirements:

A. AAST FOUNDATIONAL COURSE (3 credits)

1. Introduction to Asian American Studies (AAST200/AMST298C)

OR

2. Asian American History (AAST201/HIST221/HIST219M/HIST219G)

B. ELECTIVE COURSES (9 credits)

Three (3) additional AAST or other approved courses, two of which must be upper division and one must be comparative ethnic or global/transnational/international (see courses with an asterisk*). Students may take a course not on this list with approval from the AAST Director. The following list of regular and special topics include:

AAST200 Introduction to Asian American Studies

AAST201 Asian American History

AAST223 Introduction to Asian American Literature

AAST222/HIST222 Immigration and Ethnicity in the United States

AAST443 Asian American Politics

AAST378 Experiential Learning

AAST388 Independent Research

AAST498M Asian American Public Policy

AAST498I Asian American Leadership

AAST498G Asian American Women and Gender

AAST498O Asian American Health

*THET498D Special Topics in Theatre History from 1800 to Present: Asian American Theatre

*AAST498B Confucius' Many Lives in East Asia and Asian America

*AASP499T Advanced Topics in Public Policy and the Black Community: Race, Poverty, Violence, and the Juvenile Justice System: A Theoretical and Contextual Analysis of Social Capital

*AASP202H Black Culture in the United States

*USLT498B Special Topics: Latinas/os and US Popular Culture

*USLT498B Special Topics: Latinas/os and Racial Formation

*EALL300 The Languages of East Asia

*ARTH290 Art and Society in Asia

*AAST498W/AMST498R Selected Topics in American Studies: Transnational American Studies

*ARTH489F Special Topics in Art History: Modern Chinese Film and Visual Culture

*ENGL428Y Seminar in Language and Literature: Authors of the Early Black Atlantic

*USLT202 Overview US Latino/a Studies

*PSYC354 Cross-Cultural Psychology

*300-Level Asian language course (only 1 language class can count toward AAST minor)

C. UPPER DIVISION COURSES (3 credits)

AAST 499 Senior Thesis. Prerequisite: AAST200 or AAST201. Restriction: Permission of instructor or enrolled in AAST minor. This advanced colloquium in Asian American Studies is designed as a senior seminar. The course offers an intensive learning experience and students are required to complete a thesis, applied research project, or take part in and write about a sustained community experience.

OR

One additional 400-level AAST course

Astronomy

1208 Physical Sciences Complex, 301-405-3001
www.astro.umd.edu

Minor in Astronomy

A Minor in Astronomy may be earned by completing the following with grades of "C-" or better. An appointment must be made to register for the minor before final 30 credits are taken. Please contact Department for complete rules and procedures.

	One from:	**Credits**
ASTR100	Introduction to Astronomy	3
ASTR101	General Astronomy	4
ASTR120+121	Astrophysics 1 and 2	7
	or equivalent transfer course(s)	
	One from:	
ASTR220	Collisions in Space - The Threat of Asteroid Impact	3
ASTR230	The Science and Fiction of Planetary Systems	3
	Three from:	
ASTR300	Stars and Stellar Systems	3
ASTR305	Astronomy and the Media	3
ASTR315	Astronomy in Practice	4
ASTR330	Solar System Astronomy	3
ASTR340	Origin of the Universe	3
ASTR350	Black Holes	3
ASTR380	Life in the Universe - Astrobiology	3
ASTR498	Special Problems in Astronomy	3
CRSxx	Or a course approved by the department	3

Minor in Planetary Science

A Minor in Planetary Science may be earned by completing the following with grade of "C-" or better. An appointment must be made to register for the minor before final 30 credits are taken. Please contact Department for complete rule, and procedures.

The minor will require 19-22 credits:		
One of the following:		
ASTR100	Introduction to Astronomy	3
ASTR101	General Astronomy	4
ASTR120	Astrophysics I	3
	or equivalent transfer course(s)	
One of the following:		
GEOL100/110	Physical Geology wih Lab	4
GEOL120/110	Environmental Geology with Lab	4
One of the following:		
ASTR330	Solar System Astronomy	3
ASTR430	The Solar System	3
GEOL212	Planetary Geology	3
Three of the following:	(At least one course must be from Geology and one from Astronomy. At least 6 credits from this list, and 9 overall, must be at the 300-400 level.)	
ASTR220	Collisions in Space - The Threat of Asteroid Impacts	3
ASTR230	The Science and Fiction of Planetary Systems	3
ASTR380	Life in the Universe	3
ASTR498	Special Problems in Astronomy	3
GEOL322	Mineralogy	4
GEOL340	Geomorphology	4
GEOL412	Geology of Terrestrial Planets	3
GEOL437	Global Climate Change, Past and Present	4
GEOL499	Special Problems in Geology	3

ASTR/GEOL ???	An approved Astronomy or Geology course	3-4

At least 9 credits for the minor must be at the 300-400 level.

Atmospheric Chemistry

Atmospheric and Oceanic Science (AOSC)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This minor will provide the students with a general background in meteorology as offered by the lower level required courses, and a background on issues in atmospheric chemistry. This minor track is intended for students who might pursue careers where background in atmospheric chemistry is needed, such as air pollution, atmospheric chemistry, and environmental issues. It is aimed at students that might consider graduate work in atmospheric chemistry, or prepare them for a very favorable job market in the Washington area, where a background in meteorology can be an important asset. Students attempting this minor will need a strong background in mathematics, physics and chemistry at the level of MATH240 or 461, PHYS270 and PHYS271, CHEM481 (preferred), CHEM135 or 131, which are prerequisites for the required courses. Students interested in taking this minor program should contact the Undergraduate Advisor in the Department of Atmospheric and Oceanic Science. This minor is not open to students who major in Physical Sciences with a concentration in Meteorology, or who major in Physics within the Meteorology Physics area of concentration.

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better.

The students must choose two electives from:

- AOSC123 Causes and Consequences of Global Change
- AOSC200 Weather and Climate
- Any AOSC 400 level course offered below as elective

The following two courses are required:

- AOSC431 Atmospheric Thermodynamics
- AOSC433 Atmospheric Chemistry and Climate, or AOSC434 Air Pollution

One elective from:

- CHEM474 Environmental Chemistry
- GEOL471 Geochemical Methods of Analysis
- Other 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered

by Research Scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Departments of Geography and Geology such as:

    GEOG446 Applied Climatology
    GEOG447 Advanced Biogeography
    GEOG472 Remote Sensing
    GEOL437 Global Climate Change: Past and Present
    GEOL452 Watershed and Wetland Hydrology

Atmospheric Sciences

Atmospheric and Oceanic Science (AOSC)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This minor will provide a general background in meteorology as offered by the lower level courses, and a solid background in atmospheric physics (AOSC431) and atmospheric dynamics (AOSC432), as offered by two required courses. It is aimed at non-majors who might consider graduate work in meteorology, or prepare them for the very favorable job market in the Washington, D.C. area, where a background in meteorology can be an important asset. Students attempting this minor will need a strong background in mathematics, physics and chemistry at the level of MATH240 or 461, PHYS270 and PHYS271; CHEM135 (preferred) or CHEM131, which are prerequisites for the required courses. Students interested in taking this minor program should contact the undergraduate advisor in the Department of Atmospheric and Oceanic Science for advising. This minor is not open to students who major in Physical Sciences with a concentration in meteorology, or who major in Physics within the Physics-Meteorology area of concentration.

This minor will require 15 credits. All courses presented for the minor must be passed with a grade of "C-" or better.

The students must choose two electives from:

- AOSC123 Causes and Consequences of Global Change
- AOSC200 Weather and Climate
- AOSC400 Physical Meteorology of the Atmosphere

The following two courses are required:

- AOSC431 Atmospheric Thermodynamics
- AOSC432 Dynamics of the Atmosphere and Ocean

One elective from:

- Other 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by research scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Departments of Geology and Geographic Sciences, such as:
    - GEOL437 Global Climate Change: Past and Present
    - GEOL452 Watershed and Wetland Hydrology
    - GEOG446 Applied Climatology
    - GEOG447 Advanced Biogeography
    - GEOG472 Remote sensing

Black Women's Studies

Joint Minor in Black Women's Studies
College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.wmst.umd.edu

College of Behavioral and Social Sciences
2169 Lefrak Hall
www.bsos.umd.edu/aasp

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. Al least nine (9) credits must be at the 3xx-4xx level. No course with a grade less than C- may be used to satisfy the minor and an overall GPA of 2.0 in the minor is required for graduation. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more than two courses may count toward a major in African American Studies or Women's Studies.

Foundation courses (6 credits)
WMST263/AASP203 Introduction to Black Women's Studies or
WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
AASP313/WMST314 Black Women in U.S. History

Distributive Requirements (9 credits)
Area I - Comparative or Non-US Course - indicated by a * below (3 credits)
Area II - Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies
THET240 African Americans in Film and Theater

*ENGL362 Caribbean Literature in English
*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

Area III - Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community
HIST319 Women and the Civil Rights Movement
*WMST360 Caribbean Women
*WMST410 Women of the African Diaspora
WMST488 Senior Seminar: Black Women in the Public Eye
AASP493 Feminist and Nationalist Thought in the Black Community
WMST498 Black Feminist Thought WMST498 Womanisms and Feminisms: Theories and Methods
AASP483 Gender, Sexuality and the Black Family

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Business Analytics

The Minor in Business Analytics integrates technology with statistical and quantitative modeling techniques to provide students with the foundation needed for data driven decision making, as well as for graduate study in the field of Business Analytics. Students with these skills are in high demand in a variety of industries and sectors including marketing, finance, information systems, operations, health care and energy. For more information about this minor visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/academic-minors.

Chinese Language

School of Languages, Literatures, and Cultures (SLLC)
www.chinese.umd.edu

The 15-credit minor in Chinese language will provide students with a sophisticated understanding of Chinese linguistic knowledge and an upper-level Chinese language skill. Students attempting this minor will need a strong background in Chinese at the level of Chinese 101 and CHIN102/103, which are prerequisites for some of the required courses. This minor will be of particular relevance to students with a broad interest in learning Chinese language. Students interested in taking this minor program should contact the Chinese advisor in the Department of Asian and East European Languages and Literatures of the School of Languages, Literatures, and Cultures.

Requirements

A: Four 3-credit language courses from among the following - **12 credits**

CHIN201 Intermediate Spoken Chinese I
CHIN202 Intermediate Written Chinese I
CHIN203 Intermediate Spoken Chinese II
CHIN204 Intermediate Written Chinese II
CHIN205 Intermediate Chinese - Accelerated Track
CHIN207 Linguistic Resources for Students of Chinese
CHIN301 Advanced Chinese I
CHIN302 Advanced Chinese II
CHIN305 Life in China through TV Plays I
CHIN306 Life in China through TV Plays II
CHIN321 Classical Chinese I
CHIN322 Classical Chinese II

CHIN401 Readings in Modern Chinese I
CHIN402 Readings in Modern Chinese II
CHIN408 Classical Chinese II
CHIN411 Business Chinese I
CHIN412 Business Chinese II
CHIN413 Advanced Conversation and Composition
CHIN415 Readings in Current Newspapers and Periodicals
CHIN431 Translation and Interpretation I
CHIN432 Translation and Interpretation II
CHIN441 Traditional Chinese Fiction
CHIN442 Modern Chinese Fiction

B: One 3-credit linguistics-oriented course from the following - **3 credits**

CHIN421 Sounds and Transcriptions of Mandarin Chinese
CHIN422 Advanced Chinese Grammar
CHIN423 Chinese Historical Phonology
CHIN424 Linguistics of the Chinese Writing System
CHIN428 Selected Topics in Chinese Linguistics

- The course CHIN331 "Chinese Calligraphy: Theory and Practice" may not be used for the Chinese major or minor.
- Students must receive a "C-" or better in all courses used for the minor. 9 of the 15 credits must be 300 or 400 level courses.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than six of the fifteen credits toward the minor may be taken at an institution other than UMCP.

To make an appointment to explore or declare a minor, go to: http://www.arhu.umd.edu/undergraduate/academics/minors

Classical Mythology

Classics (CLAS)
1210 Marie Mount Hall, 301-405-2022
www.classics.umd.edu

This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits.

Required courses:

CLAS170 Greek and Roman Mythology	3
CLAS470 Approaches to Greek Myth	3

In addition, the student must choose three courses from the following list, two of which must be at the 3xx or 4xx level. All courses listed are 3 credits.
CLAS270 Greek Literature in Translation
CLAS271 Roman Literature in Translation
CLAS320 Women in Classical Antiquity
CLAS330 Ancient Greek Religion: Gods, Myths, Temples
CLAS331 Ancient Roman Religion: From Jupiter to Jesus
CLAS370 Classical Myths in America
CLAS374 Greek Tragedy in Translation
CLAS419 The Classical Tradition

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

You are strongly encouraged to make an appointment with the undergraduate director in Classics. Please contact the department chair, Prof. Lillian Doherty (ldoherty@umd.edu).

Computer Engineering

Computer Engineering: 18 credits. The minor in Computer Engineering is a program offered by the Department of Electrical and Computer Engineering. The minor will introduce students to core hardware concepts, such as computer architecture, digital logic design, and digital circuit design, as well as core software concepts, such as algorithms, discrete mathematics, and programming. Students will also learn how hardware and software interact at the interface. With a minor in computer engineering, students will not only receive preparation for entry into the computer industry, but they will also become more effective at applying computing in their primary field of study. For more information, please visit the minor website at www.ece.umd.edu/undergrad/ce-minor

Computer Science

1119 A.V. Williams Building, 301-405-2672
www.cs.umd.edu
ugrad@cs.umd.edu

The purpose of the minor in Computer Science is not only to give students a strong foundation in and understanding of algorithmic reasoning, problem solving methods involving computers and computation, as well as a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study.

The minor in Computer Science consists of 15-24 credits; all courses must be completed with a grade of "C-" or better. MATH140 and CMSC131 are pre-requisites for entrance into the curriculum for the minor.

Requirements:

		Credits
CMSC132	Introduction to Object Oriented Programming*	4
CMSC216	Introduction to Computer Systems*	4
CMSC250	Discrete Structures*	4
CMSC330	Organization of Programming Languages	3
CMSC351	Algorithms	3
CMSC4XX and CMSC4XX	Two of CMSC411, CMSC412, CMSC414, CMSC417, CMSC420, CMSC421, CMSC422, CMSC423, CMSC424, CMSC426, CMSC427, CMSC430, CMSC433, CMSC434, CMSC435, CMSC436, CMSC451, CMSC452, CMSC456, CMSC460, CMSC466. Note: some of these classes variously have MATH240, MATH241 or PSYC100 as prerequisites.	6(7)

** or acceptable score on the CMSC exemption exam.*

NOTES:

- Students who satisfy all three of 132, 216 and 250 by exemption exam shall take one additional 400 level class from the approved list. This obligation is in addition to all other minor requirements.
- With prior permission of the Undergraduate Director, and at his/her discretion, at most one section (3 credits) of CMSC498, Independent Study, may substitute for one of the two core CS classes at the 400 level. This provision is intended to allow students to pursue unexpected opportunities for study of interdisciplinary topics having a substantial computational component complementing their major.
- Course combinations:
    - Students may not use more than one of CMSC460 or CMSC466 toward the minor.

Construction Project Management

A. James Clark School of Engineering
1131 Glenn L. Martin Hall, 301-405-0234

School of Architecture, Planning and Preservation
Architecture Building, 301-405-8000

A minor in Construction Project Management will prepare students for employment in one of the many careers related to the built environment, such as project management, architectural engineering, design and commercial construction. Students will learn how to manage multiple phases of operation and management in the construction process including building information modeling, cost estimating, project scheduling, construction financing and planning. The Construction Project Management minor is ideal for students in Architecture, Engineering and similar fields. This minor is designed to give students a competitive advantage when applying for a job in the construction industry.

Admissions Requirements
This Minor is only available to undergraduate students in the A. J. Clark School of Engineering and the School of Architecture, Planning and Preservation who have earned at least 60 credit hours (Junior standing) and have a Maryland GPA of 3.0 or higher.

Application Process
Interested students must complete an application to the Minor and get approval from his/her Major advisor and the CPM Minor advisor for his/her school. Students can get an application from his/her Major advisor or go to: http://pm.umd.edu/program/cpm-minor/ for an online copy.
Engineering – CPM Minor Advisor- Dr. Qingbin Cui: cui@umd.edu
Architecture – CPM Minor Advisor - Heidi Bulich: hbulich@umd.edu

Course Requirements
The Minor in Construction Project Management consists of 15 credit hours. Students must complete 5 of the following courses with a grade of "C-" or better and have a minimum 2.0 GPA for the minor. Students must also complete an internship in the construction industry.

When are the required courses offered?

Core Courses	Fall	Winter	Spring	Summer
ENCE 325 - Introduction to Construction Project Management	**C**		**C**	
ENCE 423 – Project Planning, Estimating & Scheduling	**C**		**C**	
ENCE 424 – Communication for Project Managers	**C**		**C**	**Online**

ENCE 426 – Construction Documentation and BIM Applications in Engineering and Construction			
or			
ARCH 472– Building Information Modeling Communication and Collaboration	**C**	**C**	
Electives – Choose 1			
ENCE 420 – Selection & Utilization of Construction Equipment	**C**		
ENCE 421 – Legal Aspects of Architectural & Engineering Practice		**C**	
ENCE 422 – Project Cost Accounting & Economics	**C**	**C**	**Online**
ARCH 430 – Measuring Sustainability in Architecture	**C**		
ARCH 462 – Methods & Materials of Building Construction	**C**		
ARCH 467 – Integrated Project Delivery			

Creative Writing

1128 Tawes Hall, (301) 405-3825
www.english.umd.edu
english@umd.edu

The minor in Creative Writing offers students the opportunity to engage deeply with their own writing and that of their peers in a graduated series of workshops led by professional writers of poetry and prose.

The Creative Writing minor's 15 credits consist of the following:

- Three credits at the 200-level (ENGL271 or ENGL272 or ENGL273 or AASP274/ENGL274)
- Three credits at the 300-level (ENGL352 or ENGL353)
- Six credits at the 400-level (two sections of ENGL498 or of ENGL499)
- Three credits in any 300 or 400 level English literature course.

After admission to the minor, students choose to specialize in either prose (352, 498) or poetry (353, 499). Students admitted directly to a 300-level workshop must take three workshops (9 credits) at the 400-level.

All courses presented for the minor must be passed with a grade of C- or better. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Earth History

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate minor in Earth History recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

		Credits
GEOL100/110 or GEOL120/110	Physical Geology/Lab, **or** Environmental Geology/Lab	4
GEOL102	Historical Geology	4
Three from:		
GEOL331	Principles of Paleontology	4
GEOL341	Structural Geology	4
GEOL342	Sedimentation and Stratigraphy	4
GEOL436	Principles of Biogeochemisty	3
GEOL437	Global Climate Change: Past & Present	3
GEOL499	Special Problems in Geology	3
	Total	18-20

Earth Material Properties

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

The undergraduate minor in Earth Material Properties recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Required:

- One of the following:
  - GEOL100/110 Physical Geology/Physical Geology Lab (4)
  - GEOL120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL322 Mineralogy (4)
- Plus three from:
  - GEOL341 Structural Geology (4)
  - GEOL423 Optical Mineralogy (4)
  - GEOL443 Petrology (4)
  - GEOL445 High Temperature Geochemistry (3)
    - GEOL456 Engineering Geology (3), or
    - GEOL457 Seismology (3)
  - GEOL499 Special Problems in Geology (3)

Secondary Education

Teaching and Learning, Policy and Leadership (TLPL)
2311 Benjamin Building, 301-405-3324
www.education.umd.edu/TLPL

The minor in Secondary Education provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing the minor desires to enter an education track, the candidate may apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education (MSDE) approved program option. Some of the courses undergraduates take to complete the Minor in Secondary Education may also be applicable toward certification options at the post-baccalaureate level offered through TLPL. These individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

The secondary education minor includes coursework from Teaching and Learning, Policy and Leadership. The curriculum provides a foundation in adolescent development and education policy and includes an introductory pedagogy course in one of the core secondary areas: English, Social Studies, Mathematics, Science, World Languages. The minor also incorporates coursework to meet the MSDE reading requirements that are part of secondary subject area teacher certification.

Courses required for the minor are:

		Credits
EDHD413	Adolescent Development	3
EDHD426	Cognition and Motivation in Reading: Reading in Content Areas I	3
EDCI463	Reading in the Secondary School	3
	Select one of the following foundation courses:	
EDPS201	Education in Contemporary American Society OR	3
EDPS210	Historical and Philosophical Perspectives on Education OR	
EDPS301	Foundations of Education	
	Select one of the following secondary education introductory methods:	
EDCI416	Teaching and Learning in Secondary Education: English OR	3
EDCI410	Methods I: K-12 Foreign Language Methods and Technology OR	
EDCI457	Teaching and Learning Middle School Mathematics OR	
EDCI411	Knowledge, Reasoning, and Learning in Science OR	
EDCI426	Knowledge, Reasoning, and Learning in Secondary Social Studies	
	Other Electives (optional): EDCI280 - Looking Inside Schools and Classrooms (3) EDCI386 - Experiential Learning (3)	

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better. A cumulative GPA of 2.75 is required for enrollment in the secondary education introductory methods courses (EDCI410, 411, 416, 426, 457). No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.

Second Language Education

Teaching and Learning, Policy and Leadership (TLPL)

2311 Benjamin Building, 301-405-3324
www.education.umd.edu/TLPL

The minor in Second Language Education provides opportunities for undergraduate subject area majors to complete a sequence of courses that helps them prepare for careers as teachers of English as a second language in US schools and/or prepare them for roles as teachers of English as a foreign language in international settings. If the undergraduate pursuing the minor desires to enter the ESOL teacher preparation track, the candidate may apply for the Five Year Integrated Program option or the one year MCERT Program option; in either case, satisfactorily completed courses in the minor that meet program requirements will be applied to the certification program requirements. Individuals should consult with an advisor in Student Services to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with that program.

The minor in Second Language Education includes coursework from Curriculum and Instruction and Human Development. The curriculum provides a foundation in second language learning and pedagogy, adolescent learning, cross-cultural issues and understanding, and curricular and pedagogical issues which support reading and writing in a second language context. A number of the courses include field components that provide candidates with direct experience in working with second language learners. The minor incorporates coursework required for TESOL certification from the Maryland State Department of Education.

Courses required for the minor are:

		credits
EDCI437	English Grammar Pedagogy for Teachers of English Language Learners	3
EDCI432	Issues in the Education of English Language Learners	3
EDHD413	Adolescent Development	3
EDCI434*	Pedagogy of Teaching English Language Learners	3
EDCI435*	Teaching English Language Learners Reading and Writing in the Secondary Content Areas	3
EDCI436	Understanding Cross Cultural Communication for Teaching English Language Learners	3

* courses that include required field experiences

Engineering Leadership Development

A. James Clark School of Engineering
1131 Glenn L. Martin Hall, 301-405-0234
www.ilp.umd.edu

The goal of the minor in Engineering Leadership Development is to prepare engineering students for leadership roles in industry and to develop the skill most attractive to employers. The minor will complement the technical skills and knowledge students acquire during their engineering coursework to better prepare them to engage in leadership within industry. Students may earn a minor and a notation on their official transcript by completing coursework which focuses on communication, leadership theory, global awareness, project management, understanding oneself, and working effectively with others.

Requirements

The minor in Engineering Leadership Development consists of **16 credit hours.** A maximum of six credits may also count toward the student's major, and no more than six credits may be taken at an institution other than the University of Maryland, College Park. All courses counted toward the minor must be completed with a "C-" or better. The following courses are required:

- ENES317: Introduction to Engineering Leadership (3 credits)
- ENCE320: Engineering Project Management (3 credits)

- ENES472: International Business Cultures in Engineering and Technology (3 credits)
- ENES424: Engineering Leadership Capstone Course (3 credits)
- EDHI338: Intergroup Dialogue (1 credit)
- Elective: Requires advisor approval (3 credits)

Note: ENES317, ENCE320, and ENES472 must be taken **before** ENES424.

Contact the minor advisor, Ramsey Jabaji (rjabaji@umd.edu), or visit the web at www.ilp.umd.edu for more information.

Environmental Economics and Policy

Agricultural and Resource Economics (AREC)
2200 Symons Hall
www.arec.umd.edu

This minor provides students with economic knowledge to apply to analysis and understanding of environmental and resource policies. AREC382 and the 400-level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to environmental policy analysis. AREC332 is a course intended primarily for non-AREC majors. AREC240 is an introductory course giving students an overview of the subject. AREC382 and AREC455 are required courses in the ENSP environmental economics concentration; AREC445 is on a list of restricted electives in that concentration. AREC240 and AREC332 can be used to meet ENSP core requirements for all ENSP concentrations.

AREC200		The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy	3
AREC240	**OR**	Introduction to Economics and the Environment **OR**	3
AREC250		Elements of Agricultural and Resource Economics	3
AREC382		Computer-based Analysis in Agricultural and Resource Economics	3
AREC445		Agricultural Development, Population Growth, and the Environment	3
AREC453		Natural Resources and Public Policy	3
AREC454		The Economics of Climate Change	3
AREC455		Economics of Land Use	3
AREC422		Econometric Applications in Agricultural and Natural Resource Economics	3
		Please choose five courses from the list above. Nine credits must be at the 300-400 level.	

Another AREC course can be substituted for one of the courses listed with permission of Undergraduate Advisor.

Total Credits15

French Studies

School of Languages, Literatures, and Cultures (SLLC)
www.french.umd.edu

This 18-credit minor will provide students with a solid overview of linguistic, cultural, and literary aspects of the study of French.

Courses required for the minor, in this order, are:

FREN204, FREN250, FREN301

Following completion of this core sequence, students will choose three (3) courses from the following:

FREN302 or FREN303
FREN311 or 312
FREN351, 352, and any 4XX-level course/s*

* Starting in Fall 2013 one 4xx-level elective is required for completion of the minor in French studies.

- All courses must be in French.
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of Maryland in Nice, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- Students who matriculated in Fall 2012 or later must earn a cumulative GPA of 2.0 within their minor in order to graduate.
- Students who begin their study as native/fluent speakers should seek the advice of the advisor before choosing the courses they will use to replace the core minor courses.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

General Business

The General Business minor provides the business savvy to complement the depth of knowledge acquired in the students' chosen area of major, so they excel in their careers after graduation. Note: The General Business minor is not open to declared Business majors. For more information about this minor visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/academic-minors.

Germanic Language, Literature and Culture

School of Languages, Literatures, and Cultures (SLLC)

www.german.umd.edu

This minor will provide students with an in-depth understanding of German Language and Literature as a source of Culture. Building on these essentials, students can concentrate on Language, Literature, Culture, or a combination of these fields. This will be accomplished by taking 5 courses beyond GERM203 or its equivalent. Students will determine, in close consultation with the German undergraduate advisor, how to constitute their own concentration.

Minor Requirements:

15 credits - 5 courses beyond GERM203 or its equivalent

- Courses taught in German beyond 203 or its equivalent
- 3 of these 5 courses (9 hours) must be 3xx or 4xx level: one language, one literature, and one culture
- Prerequisites: GERM103 and 203 are required, or their equivalents as determined through departmental advising
- All courses must be passed with a grade of "C-" or higher.
- An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Geochemistry

Geology (GEOL)â€¨
1115 Geology Building, 301-405-4365
â€¨www.geol.umd.edu

The undergraduate minor in Geochemistry recognizes concentrated study in this designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Required:

- One of the following:
  - GEOL100/110 Physical Geology/Physical Geology Lab (4)
  - GEOL120/110 Environmental Geology/Physical Geology Lab (4)
- GEOL322 Mineralogy (4)
- One of the following:
  - GEOL444 Low Temperature Geochemistry (4)
  - GEOL445 High Temperature Geochemistry (4)
- Plus two from:
  - GEOL435 Environmental Geochemistry (3)
  - GEOL436 Biogeochemistry (3)
  - GEOL443 Petrology (4)
  - GEOL444 Low Temperature Geochemistry (4) (if not used to satisfy requirement above)
  - GEOL445 High Temperature Geochemistry (4) (if not used to satisfy requirement above)
  - GEOL471 Geochemical Methods of Analysis (3)
  - GEOL499 Special Problems in Geology (3)

Geographic Information Science

Geographical Sciences (GEOG)
2108M LeFrak Hall, 301-405-4073
www.geog.umd.edu
geog-advise@umd.edu

	Non-Geography Major Required Courses	
GEOG201/211 **or** GEOG202	Geography of Environmental Systems/Lab **or** The World in Cultural Perspective	3 or 4
GEOG306	Introduction to Geographic Methods for the Geographic Environmental Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
	One from:	
GEOG416	Conceptualizing and Modeling Human-Environmental Interactions	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3

GEOG473	Geographic Information Systems and Spatial Analysis	3
GEOG475	Computer Cartography	3
GEOG476	Object-Oriented Computer Programming for GIS	
	Total Credits	**15/16**

	Geography Major Required Courses	
GEOG306	Introduction to Quantitative Methods for the Geographic Environment Sciences	3
GEOG372	Remote Sensing	3
GEOG373	Geographic Information Systems	3
GEOG376	Introduction to Computer Programming for GIS	3
	One from	
GEOG416	Conceptualizing and Modeling Human-Environmental Interactions	3
GEOG472	Remote Sensing: Digital Processing and Analysis	3
GEOG473	Geographic Information Systems and Spaial Analsysis	3
GEOG475	Computer Cartography	3
GEOG476	Object-Oriented Computer Programming for GIS	3
	Total Credits	**15**

Student must achieve a "C-" or better in each course applied to the minor in Geographic Information Systems. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

Geophysics

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

Depending on the courses taken, there are a total of 16-18 credits required for the minor in Geophysics (also see prerequisites.)

GEOL100/110	Physical Geology/Lab, **OR**	4
GEOL120/110	Environmental Geology/Lab	4
	Any two of the following:	
GEOL446	Geophysics	3
GEOL447	Observational Geophysics	3
GEOL457	Seismology	3
	Two from:	
GEOL341	Structural Geology	4
GEOL412	Geology of the Terrestrial Planets	3
GEOL446	Geophysics (if not used to satisfy requirement above)	3

GEOL447	Observational Geophysics (if not used to satisfy requirement above)	3
GEOL455	Marine Geophysics	3
GEOL456	Engineering Geology	3
GEOL457	Seismology (if not used to satisfy requirement above)	3
GEOL499	Special Problems in Geology	3

All Geology minors are an appropriate disciplinary combination with Astronomy, Computer Science, Mathematics, or Physics majors within CMNS. The minors are also appropriate for majors outside the college with appropriate matches including, but not limited to:

Geography/Remote Sensing (Surficial Geology)
Engineering and Material Sciences (Earth Material Properties)
Evolutionary Biology and Physical Anthropology (Earth History)
Biology, Biological Diversity, and Ecology (Earth History, Hydrology)

Global Poverty

Agricultural and Resource Economics (AREC)
2200 Symons Hall
www.arec.umd.edu

Students must complete at least 15 credits in the Minor including at least one of the following Signature courses in the Global Poverty Minor:

AREC345 Global Poverty and Economic Development (3 credits)
AREC365 World Hunger, Population, and Food Supplies (3 credits)

and at least one signature course from another track in the Global Studies Minor Program:

BSST330 Terrorist Motivations and Behaviors (3 credits)
ENES472 International Business Cultures in Engineering and Technology (3 credits)
GEOG130 Developing Countries (3 credits)
GEOG330 As the World Turns: Society and Sustainability in a Time of Great Change (3 credits)
GVPT306 Global Ecopolitics (3 credits)

The remaining credits must be completed from the following:

AREC445 Agricultural Development, Population Growth and the Environment (3 credits)
ANTH265 Anthropology of Global Health (3 credits)
GVPT282 Politics and the Developing World (3 credits)
GVPT350 International Relations of the Third World (3 credits)
GEOG423 Latin America (3 credits)
ECON314 Economic History, Development and Policy (3 credits)
ECON315 Economic Development of Underdeveloped Areas (3 credits)

ECON317 Global Economic Policies (3 credits)
ECON375 Economics of Poverty and Discrimination (3 credits)
ECON416 Theory of Economic Development (3 credits)
ECON418 Economic Development of Selected Areas(3 credits)
ENST100 International Crop Production-Issues and Challenges in the 21st Century (3 credits)
FMSC381 Poverty, Affluence, and Families (3 credits)
GEOG130 Developing Countries (3 credits)
HIST496 Africa Since Independence (3 credits)
HONR228N Evaluating Global Development Assistance (3 credits)
HONR228R Parenting and Poverty: The Effects of Growing Up Poor on Children's Development (3 credits)
NFSC425 International Nutrition (3 credits)

3 credits of study abroad or 3 credits of an internship or experiential learning related to poverty and approved by advisor.

A second Global Poverty signature course and additional signature courses from another Global Studies Minor may serve as electives provided they are not being used to satisfy the requirements of a different minor. Students may also propose other courses to meet the elective requirement. No course may be used to satisfy the requirements of more than one minor.

At least 9 credits must be at the 300-400 level.

All courses presented for the minor must be passed with a grade of "C-" or better. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy minor requirements.

Global Studies

The Global Studies Minor Program provides opportunities for students from any discipline or major to study how evolving global connections affect the well-being of people throughout the world. Students in this interdisciplinary program develop an understanding and appreciation of how and why interactions across national and ethnic borders are shaped by language, culture, politics, economic development, and conflict.

The program is comprised of a number of specialization tracks which address issues from the perspective of different disciplines. The tracks are:

- International Development and Conflict Management (http://www.cidcm.umd.edu/minor/)
- International Engineering (http://www.ilp.umd.edu/coursework)
- Global Poverty (http://arec.umd.edu/undergraduate/minors/global-poverty)
- Global Terrorism (http://www.start.umd.edu/)

All students choose one course from a set of "signature" courses outside of their chosen track for exposure to major global issues addressed by the other Global Studies Minors. The minors provide an opportunity for an experiential component within a student's elective courses, including a study abroad experience. The Global Studies Minor Program includes special activities that involve students across the minors, such as special speaker forums, participation in major events, and experiences in Washington, D.C.

Global Terrorism

National Consortium for the Study of Terrorism and Responses to Terrorism (START)
Route One Annex, Suite 250, University of Maryland, College Park, MD 20740
301-405-6600
www.start.umd.edu

The Global Terrorism program focuses on exploring the origins and motivations of terrorism based on theoretical understandings of individual and group behavior. Students also explore the impacts of the threat of terrorism on individuals and communities as well as strategies for preventing, deterring, mitigating, and responding to terrorist threats. For more information about the minor, please visit: www.start.umd.edu

Students are required to take the following five courses:

- **BSST327: Introduction to Terrorism and the Terrorist Threat** (1 credit). This course focuses on bringing current events and policy issues related to terrorism and counterterrorism, as they are discussed in mass media, into the dialogue with academic theories and research. Through a discussion-based seminar, students will bring current, terrorism-related events to classroom discussion, where they will consider the media-framed current events in relation to academic research. Students will be continually challenged to draw connections between terrorism-related events in the news and relevant academic research.
- **BSST330: Terrorist Motivations and Behaviors** (3 credits). Explores theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history.
- **BSST331: Responses to Terrorism** (3 credits). Exploes the manners in which a variety of different actors respond to both terrorist incidents and the threat of terrrorism. Examines local responses to terrorist incidents; local impacts of terrorism including effects on individaul and group attitudes and behaviors; policy decisions made in response to both terrorist attacks and the threat of terrorism; terrorism prevention, deterrence, interdiction, and mitigation efforts; and individual and community recovery from terrorist attacks.
- **BSST335: Innovations in Countering Violent Extremism** (3 credits). Develop solutions to community-based radicalization through a blend of entrepreneurial, Design Thinking strategies and terrorist disengagement theories. Co-taught by START's Executive Director and Education Director, this course asks students to design original

programs targeting real-world, at-risk communities. Students will present their programs to a panel of experts.
- **BSST386: Experiential Education in Terrorism Studies** (minimum of 3 credits). This course will supplement student's experiential learning experience, or internship in the field of terrorism studies and homeland security with guided reflection on their experiences.

In addition to the four required BSST courses, students must take 3 elective credits from within the Terrorism Studies Department (BSST) that is not otherwise a minor requirement.

To satisfy the final requirement, students must also enroll in one Global Studies Signature Course, to be selected from the following list of approved courses:

- **AREC345: Global Poverty and Economic Development.** This interdisciplinary course explores social and economic development around the world. Topics include geography, democratization, political stability and conflict, health and education, agricultural development, micro-entrepreneurship, and an introduction to impact evaluation methods used to evaluate the efficacy of public policy aimed at alleviating poverty.
- **AREC365: World Hunger, Population, and Food Supplies.** An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.
- **ENES472: International Business Cultures in Engineering and Technology.** The goal is to provide students with an understanding of cultural aspects pertaining to global business and engineering and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.
- **GEOG130: Developing Countries.** An introduction to the geographic characteristics of the development problems and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.
- **GEOG330: As the World Turns: Society and Sustainability in a Time of Great Change.** Cultural geography course on society and sustainability of societies on different scales, examining local, regional, and worldwide issues. Sustainability will be examined as a key element of environmental sustainability. How societies adjust to rapid world change will be examined as a positive and/or negative factor in sustainability.
- **GVPT306: Global Environmental Politics.** Focus on three processes of international environmental policy development - identifying problems, negotiating solutions, and implementing agreements - through a range of case studies including global climate change.

All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

Greek Language and Culture

Department of Classics
www.classics.umd.edu

This minor may be earned in EITHER the ancient or the modern Greek language (not a combination). In completing it, the student will reach an intermediate or advanced level of proficiency in the language and will also be introduced to the history and culture of Greece.

The minor requires 9 to15 credits in ancient OR modern Greek language courses, i.e., courses with the GREK prefix; at least one language course must be at the 3xx or 4xx level. All the language courses counted toward the minor must be in either ancient OR modern Greek, not a combination.

The minor also requires 3 to 6 credits in courses taught in English; these may focus on either ancient or modern Greek literature, history, and culture.

As required for all minors, at least 9 credits overall must be in courses at the 3xx or 4xx level. The grade point average in the minor must be at least 2.0 and no grade below "C-" can be counted toward the minor. A maximum of 6 credits may be counted toward both the minor and the student's major. A maximum of 6 credits earned at other institutions may be counted toward the minor.

To make an appointment to explore or declare a minor, contact the department chair, Dr. Lillian Doherty (ldoherty@umd.edu). She will put you in touch with the undergraduate director in Classics.

Hearing and Speech Sciences

Hearing and Speech Sciences (HESP)
0100 LeFrak Hall, 301-405-4213
www.hesp.umd.edu

This course sequence acquaints students with the primary basic science background in the speech, language and hearing sciences, and permits students to select two courses in the specific professional areas of speech language pathology or audiology.

This minor serves two different purposes:

1. A minor in HESP can be used to **compliment** a major in a related field such as Special Education, Human Development, Linguistics, Psychology, Education or a Foreign Language. It allows a student to understand the relationship between speech, language and hearing, normal development, and their related disorders. It also encourages collaboration between this discipline and related ones.

2. This minor can also be utilized for students who are in other majors but have decided to **pursue graduate studies in either Speech-Language Pathology or Audiology.** These courses are widely viewed as potential pre-requisites to such programs and constitute a **proportion but not all** of the pre-requisites needed for eventual certification with an M.A. in Speech-Language Pathology or an Au. D. in Audiology. Because both graduate programs and the American Speech Language Hearing Association require additional coursework, the student pursuing a HESP Minor for this purpose is strongly encouraged to meet with the HESP Academic Advisor to ensure that eventual educational goals are properly addressed.

The HESP minor **DOES NOT** qualify an individual to work professionally as a Speech-Language Pathologist, or an Audiologist, but does provide **a proportion but not all** of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

Requirements for the HESP minor include the following coursework:

All students must take the following six courses:

HESP202-Introduction to Hearing and Speech Sciences

HESP300-Introduction to Psycholinguistics

HESP400-Child Language Acquisition

HESP403-Phonetics

HESP407-Hearing Science

PLUS 2 courses in one of the two elective areas:

Elective option 1 (Speech-Language Pathology Focus)

HESP305-Anatomy/Physiology of the Speech Mechanism, and

One Disorder class. Choice of one of (HESP402, 404, 406, 410)

Elective option 2 (Audiology focus)

HESP311-Anatomy/Physiology/Pathology of the Auditory Mechanism, and

HESP411-Introduction to Audiology

TOTAL CREDITS: 21

Notes:

- As with HESP majors, students must obtain a grade of "C-" or better in a class in order to enroll in any courses that require that class as a pre-requisite.
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.
- This course sequence acquaints the student with the primary basic science background in the speech, language and hearing sciences, and permits the student to select two courses in the specific professional areas of speech, language or hearing, based on the student's primary interest area.

History

The History Minor is designed to introduce students to the broad field of historical study, both by deepening their knowledge and understanding of the past and by developing their ability to do critical, historically-minded analysis. In working with both primary and secondary texts, students will hone their skills in research methods, critical thinking, and expository/analytical writing. The requirement that courses are distributed across geographic fields and chronological periods ensures that students consider the variety and range of historical experiences. History courses must be completed with a grade of C- or better to count toward the minor. Additionally, a minimum GPA of 2.0 is required across all courses counted toward the minor.

Participating students must complete 18 credits (6 courses) in History.

- The courses must be distributed in at least 2 geographic fields (Asia, Europe, United States, Middle East, etc.).
- The courses must include at least one course in each of two chronological periods (pre-1750/post-1750).
- A minimum of 9 credits (3 courses) must be taken at the 3xx or 4xx-level.
- No more than 3 credits (1 course) may be taken at the 1xx-level.
- No more than 3 credits (1 course) may be fulfilled by AP, IB, or transfer credit.
- A student may use a maximum of 6 credits (2 courses) to satisfy requirements for both a major and a minor. Courses completed for one minor may not be used to satisfy the requirements for another minor.
- Any student is eligible to pursue the minor, with the exception of a student majoring in History.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Human Development

3304 Benjamin Building, 301-405-2827
www.education.umd.edu/HDQM

The Human Development Undergraduate Minor provides a rigorous foundation in Human Development for students who wish to support their major field of study with knowledge of human growth and development across multiple domains and developmental stages, as well as knowledge related to principles of teaching and learning and/or who desire active participation in human development research under the supervision of Human Development faculty in laboratory settings. Students with a 2.0 minimum grade point average may seek enrollment in the program, during which they must complete 15-24 credits of coursework. Only courses in which the student has earned a grade of "C-" or higher will count toward the minor. Students must take EDHD306 and choose other courses from at least two of the other areas of human development study, including Lifespan, Cognitive and Social. Students who have taken FMSC332 will be required to choose a course other than EDHD411 from the list of courses available in Area 4: Lifespan. Students who apply to the Minor and who have taken FMSC302 may substitute that course for EDHD306. At least nine credits must be at the 300 or 400 level.

Students interested in taking this minor should contact the Office of Student Services in the College of Education. Please email educminors@umd.edu or call 301-405-2364 for more information or to arrange an advising appointment. The Student Services office is located in Room 1204, Benjamin.

Area 1	Area 2	Area 3	Area 4
Cognitive	**Social**	**Research**	**Lifespan**
EDHD201	EDHD221	EDHD306*	EDHD230
EDHD231	EDHD402	EDMS451	EDHD320
EDHD420	EDHD421		EDHD400
EDHD425	EDHD430		EDHD401
EDHD426	EDHD445		EDHD411
EDHD436	HONR219Y		EDHD412
EDHD460	HONR228R		EDHD413
			EDHD414
			EDHD440

Course selections might include three credits of EDHD319 (Selected Topics in HD), EDHD386 (Experiential Learning), or EDHD498 (Special Problems in Education). These courses involve directed study with a faculty advisor.

**EDHD306 cannot be excluded from any course plan. It is required for all EDHD minors.*

General Education Designations: History and Social Science (EDHD 201, 221, 230, 231, 320, 400, 411, 413, 440, & 460); Analytical Reasoning (EDHD306, EDMS451); Understanding Plural Societies (EDHD230); I-Series (EDHD 221, EDHD 231).

CORE Designations: EDHD230, HONR219Y, HONR228R

Hydrology

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

An undergraduate minor in Hydrology recognizes concentrated study in a designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and is administered by the Geology Undergraduate Studies Director.

A grade of "C-" or better must be earned in all courses required for the minor. See www.geol.umd.edu for more information.

Minor Requirements

GEOL100/110	Physical Geology/Lab, **or**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL451	Groundwater	3
GEOL452	Watershed and Wetlands Hydrology	3
	Two from:	
GEOL436	Principles of Biogeochemisty	3
GEOL444	Low Temperature Geochemistry	4
GEOL453	Ecosystem Restoration, **or**	3
GEOL435	Environmental Geochemistry	3
GEOL499	Special Problems in Geology	3

Innovation & Entrepreneurship

The Innovation & Entrepreneurship minor equips students with the knowledge and skills to ramp up their own businesses, as well as to innovate and think creatively about problem-solving and strategy. For more information about this minor visit http://www.rhsmith.umd.edu/programs/undergraduate-programs/academics/academic-minors.

International Development and Conflict Management (MIDCM)

2117 Chincoteague Hall
301-314-7703
http://www.cidcm.umd.edu/minor/

MIDCM is a 16-credit, undergraduate program of instruction for students with academic and professional interests in the fields of international development and conflict management – and their intersections.

Applications to MIDCM are accepted in the Spring and accepted students begin the program the following Fall. Students applying for the program must be entering their sophomore, junior, or senior year of undergraduate study. Applicants must be full-time students in good standing, with a cumulative GPA of 2.5 or better. Up to 70 students are accepted into the program each year.

Requirements for the minor include the following coursework:

	Required Courses	**Credits**
GVPT354	International Development and Conflict Management	3
GVPT355	Capstone in International Conflict Management	3
GVPT356	Capstone in International Development	3
ELECTIVE	Global Studies Signature Elective course from approved list	3
METHODS	One research methodology course from approved list	3
BSOS388E	Behavioral and Social Sciences Special Topics: CIDCM Minor Practicum	1
	Total Credits	**16**

Note: Six credits (or two courses) can be double counted for your major and the minor. Classes must generally be completed after acceptance into the minor program, with the exception of the signature elective and methods requirements.

All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements.

International Engineering

A.James Clark School of Engineering (ENGR)
1131 Glenn L Martin Hall, 301-405-0234
www.ilp.umd.edu

In addition to a strong engineering background, there is a need for engineers with cross-cultural experience and foreign language abilities. Students may earn the minor by completing a course in International Business Cultures for Engineering and Technology, a Global Studies Minor Program signature course, and additional courses in language, culture studies, or internationally

related studies, plus an engineering experience abroad. Contact the minor advisor, Jane Fines (jfines@umd.edu) or visit the web at www.ilp.umd.edu for more information. Students who fulfill minor requirements will receive a notation on their official transcript.

Israel Studies

Minor in Israel Studies

www.israelstudies.umd.edu/undergraduate-minor.html

Students doing a Minor in Israel Studies will study the history, culture and political structure of Israel and its place in the Middle East. Students from all majors are encouraged to apply.

Program Requirements

The minor consists of 15 credits, and is organized around the following requirements:

Required Core Courses (9 Credits)

ISRL342/HIST376*	History of Zionism and the State of Israel	3 credits
ISRL448	Seminar in Israel Studies – seminar topics change each semester	3 credits
Middle East Studies Course**	One course in the area of Middle East Studies *(see following list)*	3 credits

To fulfill the Middle East Studies requirement, students must take one of the courses listed below or a comparable course. Courses within ISRL cannot be counted for this requirement. This list is not complete; other courses may be substituted with the approval of the Advisor. Students may also take one additional course from this list as an elective for credit toward the Minor.

ARAB221	The Arab World Today through Readings in Translation	
HIST120	Islamic Civilization	
HIST314	Crisis and Change in the Middle East	*prereq: one prior History course*
HIST491	History of the Ottoman Empire	
GVPT455	Contemporary Middle Eastern Politics	*prereq: GVPT280 or 282*

*A comparable course at another university may substitute for this; consult the Minor Advisor

** Other courses in Middle East Studies at UMD or elsewhere may be substituted for those on this list in consultation with the Advisor. HIST, COMM, GVPT, and SLLC all regularly offer special topics courses on the Middle East.

Elective Courses (6 Credits)

JWST142 Introduction to Modern Israel

ISRL289I Fundamental Questions of the Israeli-Palestinian Conflict

ISRL448A: Israeli Politics and Government

ISRL448B: Israeli Society

ISRL449 Advanced Topics in Israel Studies

*HEBR111, 112, 211, 212
*ARAB104, 105, 107, 204, 205, 207, 304, 305
JWST304 Critical Approaches to Israeli Culture
HEBR313 Conversation and Composition I
HEBR314 Conversation and Composition II
HEBR381 Introduction to Hebrew Cultural Studies (taught in Hebrew)
HEBR382 Israeli Media (taught in Hebrew)
JWST478 Readings in Modern Hebrew (if topic appropriate: must be approved)
JWST471 Modern Hebrew Literature in Translation
JWST249 Special Topics in Israel Studies
JWST349 Special Topics in Israel Studies
JWST449 Advanced Special Topics in Israel Studies
JWST488 Independent Study in Israel Studies

* No more than 3 credits of language instruction below the 3xx-level may be credited toward the Minor.

Special Topics in Israel: (Topics change on an annual/semester basis, generally taught by distinguished visiting faculty.)

- ISRL249: Special Topics in Israel Studies
- ISRL349: Special Topics in Israel Studies
- ISRL449: Advanced Topics in Israel Studies

<u>Special Topics in recent years have included</u>: The Arab-Israeli Conflict through Film; Introduction to Israeli Cinema; Immigration & Ethnicity in Israel; Israel Politics and Society; Women and Gender in Israel; Public Culture in Israel; Israel Society as Seen Through Literature & Culture; Cultural Diversity and Multiple Identities in Contemporary Israeli Society; Society Politics and Mass Media in Israel; The Theater of Terror: Modern Terrorism and Mass Media; Israeli Politics for Young Leaders, and more.

Other appropriate courses may be taken as electives if approved by the Israel Studies Advisor.

Restrictions:

- Coursework must include at least 9 3xx or 4xx-level credits, of which 6 of those credits MUST be taken at University of Maryland. These include credits earned in UM Study Abroad programs.

- A student may use a maximum of 6 credits (two courses) to satisfy requirements for both a major and a minor. Courses completed for one minor, may not be used to satisfy the requirements for another minor.

- No courses with an earned grade below "C-" may count towards the minor.

- An overall GPA of 2.0 in the minor is required for graduation.

- Up to 2 courses may be taken at another university if the courses are approved by the Israel Studies Advisor. These would include credits earned in non-UM Study Abroad Programs.

To make an appointment to explore or declare a minor go to: www.arhu.umd.edu/undergraduate/academics/minors

Students should also contact **Prof. Paul Scham,** *Israel Studies Advisor*
pscham@umd.edu
4141 Susquehanna Hall
College Park, MD 20742
Or visit: www.israelstudies.umd.edu

Italian Language and Culture

School of Languages, Literatures, and Cultures (SLLC)
www.italian.umd.edu

The minor in Italian Language and Culture is an official recognition that a student has reached a certain level of proficiency in the target language. The minor will serve as a validation to potential employers of the student's proficiency in Italian.

18 credits are required for this minor:

Prerequisite: Successful completion of ITAL203 Intensive Intermediate Italian

Minor Requirements

ITAL204 Review Grammar and Composition

ITAL207 Reading and Writing in Italian

ITAL211 Intermediate Conversation

ITAL301 Italian Composition and Style

ITAL311 Italian Conversation: Current Events

One additional course taught in Italian at the 3xx or 4xx level

- All courses must be taught in Italian
- A maximum of six (6) credits can be applied to the minor from courses taken at other institutions, with the exception of the Study Abroad Program in Italy, which allows the transfer of nine (9) credits.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students who begin their study as native/fluent speakers should seek the advice of the Italian advisor before choosing the courses they will use to replace the core minor courses.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Japanese

School of Languages, Literatures, and Cultures
www.japanese.umd.edu

This 15-credit minor is designed to provide a concentration in Japanese language and an introduction to the academic fields of Japanese literature and linguistics. Additionally, the minor will allow Japanese heritage speakers the opportunity to engage in language study for special purposes (such as Business Japanese, Diplomatic Translation, or Classical Japanese) as well as in the study of Japanese linguistics and literature.

Requirements for the 15 credit minor in Japanese include:

A. Japanese Language Acquisition (6)

B. Japanese Linguistics (3)

C. Japanese Literature/Cultural Studies (3)

D. An additional 3 credits of student's choice from one of the three lists above.

- At least nine of the fifteen hours must be at the 3xx or 4xx level.
- Students must receive a "C-" or better in all courses used for the minor.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than 6 of the 15 credits toward the minor may be taken at an institution other than UMCP.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Jewish Studies

Jewish Studies Program (JWST)
4141 Susquehanna Hall, 301-405-4975
www.jewishstudies.umd.edu
jwst-contact@umd.edu

The Minor in Jewish Studies offers a broad overview of the principal aspects of Jewish Studies as a field. Students are encouraged to take courses in a variety of areas through a combination of required fields and general electives.

Requirements - 15 credits are to be distributed as follows:

History	3 credits
Literature	3 credits
Thought, Religion, or Culture	3 credits
Electives	6 credits

- A minimum of 9 credits must be at the 3xx or 4xx-level.
- All credits must be earned with a grade of "C-" or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the Director of the Jewish Studies program.
- Up to 3 credits of 1xx or 2xx-level Hebrew or Yiddish language study may be credited toward the minor. In exceptional cases, students may petition to have other languages included.

Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the minor.
- At least 6 credits of 3xx or 4xx-level credit must be taken at the University of Maryland.

- No more than 6 credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than 6 credits may also be applied to a major.

Korean Studies

School of Languages, Literatures, and Cultures (SLLC)
www.korean.umd.edu

The Korean Studies Minor will provide students with a basic knowledge of Korea and its language and culture. Five 3-credit courses are required, and three of the five must be at the 3xx or 4xx level. This minor is open to both heritage and non-heritage students alike. Those interested should contact the faculty in the Korean Language Program for advising.

15 credits are required for the minor:

A. Korean language and language-related courses:

Two 3-credit courses devoted specifically to Korean language or language-related studies. Both must be at the second-year level or above. Courses that fit this description include the following:

KORA201	Intermediate Korean I
KORA202	Intermediate Korean II
KORA211	Introductory Reading for Speakers of Korean I
KORA212	Introductory Reading for Speakers of Korean II
KORA241	History of the Korean Language
KORA242	Introduction to Korean Linguistics
KORA311	Korean for Heritage Speakers, Advanced-Low I
KORA312	Korean for Heritage Speakers, Advanced-Low II
KORA345	Korean Language and Linguistics

B. Korea-related courses:

Three 3-credit courses in Korea-related studies from fields such as history, sociology, and art history. At least one of these courses must have broad East Asian content to provide breadth to the minor. (Examples of such East Asian courses are marked with an asterisk.)

HIST319N*	Korean History
SOCY398K	Contemporary South Korean Society
HIST284*	East Asian Civilization I
HIST285*	East Asian Civilization II
HIST319C*	Asian Age in World History
EALL300*	The Languages of East Asia
GVPT359C*	Politics of Japan and Northeast Asia

ARTH 290* Art of Asia

- Other Korea-related courses may be used to satisfy the requirements, subject to the approval of the Korean Program advisor.
- Three of the five required courses must be at the 3xx or 4xx level.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- No more than six credits can overlap with the major, and no more than six credits can come from off-campus (study abroad, transfer, etc.).

To make an appointment to explore or declare a minor, go to: www.arhu.umd.edu/undergraduate/academics/minors

Landscape Management

Plant Sciences (PLSC)
2139 Plant Sciences Building, 301-405-4359
www.psla.umd.edu/

Advisor: Dennis Nola, dnola@umd.edu

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of "C-" or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC100, *Introduction to Horticulture*, as a prerequisite.

Curriculum:

		Credits
PLSC253	Woody Plants for Mid-Atlantic Landscapes I	3
PLSC254	Woody Plants for Mid-Atlantic Landscapes II	3
PLSC305	Introduction to Turf Management	3
PLSC251	Financial Applications for the Green Industry	3
PLSC452	Environmental Horticulture	3
	Select one of the following courses:	
AREC240	Introduction to Agriculture and the Environment	4
AREC250	Elements of Agricultural and Resource Economics	3

AREC306	Farm Management	3
BMGT220	Principles of Accounting I	3

Total Credits: A minimum of 18 or 19 credits is required to complete this minor. (Depending on which AREC or BMGT course is chosen)

- A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.

- This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.

- Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

Latin Language and Literature

Department of Classics
www.classics.umd.edu

This minor introduces students to the Latin language and enables them to read, in Latin, important works of Latin literature. For students with no prior experience of Latin, the minor requires 21 credits, consisting of the following courses:

		Credits
LATN101	Elementary Latin I	4
LATN102	Elementary Latin II	4
LATN201	Intermediate Latin	4
LATN3xx LATN3xx	Two reading courses chosen from the following: Plautus, Petronius, Ovid or Horace and Catullus	6
LATN4xx	A reading course in a major Latin author	3
	Total	21

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 2xx level and beyond. To make an appointment to explore or declare a minor, contact the department chair, Dr. Lillian Doherty (ldoherty@umd.edu). She will put you in touch with the undergraduate director in Classics.

Law and Society

Law and Society Minor
0101 Taliaferro Hall
University of Maryland, College Park, MD 20742
301-405-3179
www.mlaw.umd.edu

The minor in Law and Society focuses on exploring the relationship between law and society. There is a focus on how law is viewed in a practical and pragmatic way. It focuses on the intent and the experience that the law brings into various industries and society as a whole. The minor is intended for students interested in expanding their knowledge and skills of laws and the effect of laws in any industry. The minor is appropriate for students in preparation for law school, graduate school, and careers in the non-profit, public and private sectors. The program consists of an integrated, interdisciplinary package of courses in research and analytic methods in applied social sciences, law and humanities.

Leadership Studies

Counseling, Higher Education and Special Education (CHSE)

Leadership Studies Minor

http://umddepartments.orgsync.com/org/leadershipstudies/
3214 Benjamin Building, 301-314-1347
leadershipstudies@umd.edu

Description

The Leadership Studies program promotes college student leadership development by educating undergraduate students *for* and *about* leadership in a complex world. The goal of the Minor is to prepare students to serve effectively in formal and informal leadership roles in campus, local, national, and global contexts. The Minor also encourages students to identify a working philosophy of leadership that can advance students' thinking around ethics, civic engagement, and the importance of working within diverse and multicultural environments. These areas are critical aspects of leadership that require faculty and students to build and critically evaluate existing theoretical, research-based, and practical knowledge of leadership. Students in the Minor can use their knowledge, skills, and competencies gained from this academic program to enhance their sense of self, engagement with others, and better identify their values in future aspirations. Core courses in the Minor are sequenced to meet increasingly complex sets of learning outcomes across cognitive, personal development, and group/organizational domains.

Eligibility

In order to apply for the Certificate or Minor in Leadership Studies, students must:

1. You have completed at least 30 credit hours of college credit
2. You are in good academic standing
3. You are enrolled in HESI 217 or have completed EDCP 217/HESI 217 with a C- or better.
4. You have completed no more than 9 credits of the Leadership Studies program coursework
5. You have more than one full academic year before you graduate

Application Procedures and Forms:

Applications will be made available as an online form, during select times each semester, for a period of two weeks. The application will ask eligible students to identify demographic information, a list of (on and off-campus) involvements (if any), and respond to three short-essay questions. Applicants must also provide a resume and an unofficial University transcript.

After the closing application date, applications will be reviewed and applicants will be notified within two to three weeks by email.

Selection Criteria:

- Demonstrates a commitment or experience in leadership, either in studying or practicing leadership
- Contributes to the diversity of students in the Minor
- Illustrates capacity to utilize leadership theories and skills
- Exhibits a commitment to intrapersonal and interpersonal growth and development through the study of leadership

Minor Completion Requirements

The CHSE Minor in Leadership Studies consists of **15 credit hours**. No more than six credits can also be applied to a student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. No course with an earned grade below "C-" may count towards the Minor.

Requirements for the Minor (15 total hours)*

- HESI217 - Introduction to Leadership (3 credits)
- HESI315 - Leadership in Groups and Organizations (3 credits)
- HESI318 - Applied Contextual Leadership OR HESI418 - Special Topics in Leadership (3 credits)
- HESI417 - Advanced Leadership Seminar (3 credits)
- ONE elective course, from our pre-approved elective list (total 3 credits)

Contact Leadership Studies at leadershipstudies@umd.edu with questions and interests in the Minor.

The Leadership Studies program is a partnership between the College of Education and the Adele H. Stamp Student Union, Center for Campus Life. More information is also listed at: http://umddepartments.orgsync.com/org/leadershipstudies/.

Lesbian, Gay, Bisexual and Transgender Studies

College of Arts and Humanities

2101 Woods Hall, 301-405-6877
www.lgbts.umd.edu
womensstudies@umd.edu

The LGBT minor in the Department of Women's Studies is a 15 credit program which provides students an opportunity for interdisciplinary study of the lives, experiences, identities, and representations of LGBT people. This course of study provides solid grounding in the major concepts and methods that define studies of sex, gender, and gender identity today.

Any student in good standing in the university may enroll in the LGBT Studies minor. In consultation with the Department of Women's Studies Academic Advisor, students will design a minor program that complements their major field of study.

Minor Requirements:
15 credits: 12 credits are in required courses, while 3 credits are earned in one 3xx or 4xx-level elective course.

A. Required core curriculum for the Minor in LGBT Studies (12 credits)

1. LGBT200 - Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One 1xx or 2xx-level course focused on literature, art, or culture by or about LGBT people, either LGBT265 (X-listed as ENGL265) or LGBT291 (X-listed as CMLT291);

3. One of the following 3xx or 4xx-level courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT350, LGBT407 (X-listed as PHIL407), or LGBT494 (X-listed as WMST494);

4. One of the following 3xx or 4xx-level courses focused on literature, art, or culture by or about LGBT people: LGBT359 (X-listed as ENGL359), LGBT459 (X-listed as ENGL459), LGBT465 (X-listed as ENGL465); or LGBT327.

B. Elective course for the Minor in LGBT Studies (3 credits)

A 3xx or 4xx-level elective will complement the required courses. This elective may be a course from categories 3 and 4 above that has not been used to fulfill requirements; or it may be one of the capstone courses in LGBT Studies (LGBT386 or LGBT488), or a course chosen from the list of approved electives for the LGBT Studies program. The list of approved electives is available at www.lgbts.umd.edu/minor.html. A student may also petition to have any course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Director of Undergraduate Studies in the Department of Women's Studies.
- No course earned with a grade below "C-" will count toward the minor in LGBT Studies.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students may use a maximum of six credits (or two courses) to satisfy the requirements of both their major and the minor in LGBT Studies. However, courses taken to complete the minor in LGBT Studies may not be used to satisfy the requirements of another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park. However, at least six 3xx or 4xx-level credits applied to the minor must be taken at this university.
- Students are advised to declare the minor in LGBT Studies to the Director of Undergraduate Studies in the Department of Women's Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Linguistics

Linguistics (LING)
1401 Marie Mount Hall, 301-405-7002
www.ling.umd.edu

The minor in linguistics will introduce students to key concepts that form the basis of modern generative linguistics. Students are introduced to the different sub-areas of linguistics in two introductory courses. Two more advanced courses in syntax and in phonology build on this foundation. One 3xx-4xx level linguistics elective completes the minor. The minor in linguistics will be of relevance to students majoring in Languages, English, Psychology, Philosophy, Education and Computer Science.

To make an appointment to explore or declare a minor, go to: www.arhu.umd.edu/undergraduate/academics/minors. More information is available at the linguistics website, "Minoring in Linguistics" at: http://ling.umd.edu/undergraduate/minors/

Courses required for the minor are:
LING200 Introduction to Linguistics (3 credits)
LING240 Language and Mind (3 credits)
LING321 Phonology I (3 credits)

LING311 Syntax 1 (3 credits)

In addition, the student will choose any one 3xx or 4xx level linguistics elective as a fifth course in linguistics.

- A total of 15 credits is required.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Students who take LING240 as their first linguistics course will substitute an approved elective for LING200
- All courses counting for the minor must be actual "classroom" courses (i.e., not independent study, research assistantships, or internships).

Mathematics

1117 Mathematics Building, 301-405-5053
www-math.umd.edu

The Department of Mathematics offers a minor in Mathematics for students majoring in other disciplines. The goal of the minor in Mathematics is to provide the student with significant mathematical skills and a perspective on the discipline.

The requirements for the minor include at least 22 credits (19 credits if exempted from MATH310) beyond first-year calculus and are outlined below:

MATH241 or MATH340	4
MATH240 or MATH461 or MATH341	3 or 4
MATH310 (unless exempted)	3
At least one theoretical course from: MATH403, 405, 410	3
At least one algebra course from: MATH401, 402, 403, 405, 406	3
At least one analysis course from: MATH410, 462, 463, 464	3
At least one probability course from: STAT400 or STAT410 or others as approved by UGO	3

> **Note**: *If additional credits are needed in order to fulfill the 22-credit (19 credits if exempted from MATH310) minimum, any 400-level MATH-STAT-AMSC courses except MATH 400, MATH 477-478, 480-484, 489, 498, and STAT 464 are acceptable.*

Other issues related to the minor in Mathematics:

- The minor in Mathematics is NOT open to Mathematics majors.
- The student will need to achieve at least a "C-" (1.7) in each course to be applied to the minor in Mathematics.

- No more than one of the 400-level courses for the minor in Mathematics may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Ida Chan, Undergraduate Mathematics Advisor (ichan@math.umd.edu).

Meteorology

Atmospheric and Oceanic Science (AOSC)
3417 Computer and Space Sciences Building, 301-405-5391
www.atmos.umd.edu

This minor will provide the students with a general background in meteorology as offered by the lower level courses, a broader background on a wide range of sub-fields in meteorology, and on current issues in climate research, as provided by the two required courses. This minor is aimed at students who wish to be informed about this field, who may not intend to pursue graduate work in this field, but who might pursue careers where a background in meteorology is important, such as environmental policy, government, and industry. This minor is not open to students who major in Physical Sciences with a concentration in Meteorology, or who major in Physics with the Physics-Meteorology area of concentration.

A total of 15 credits is required. All courses presented for the minor must be passed with a grade of "C-" or better.

The students must choose two electives from:

- AOSC123 Causes and Consequences of Global Change
- AOSC200 Weather and Climate
- Any other 400 level courses offered below as electives

Two required courses:

- AOSC400 Physical Meteorology of the Atmosphere
- AOSC401 Climate Dynamics and Earth System Science

One additional elective from:

- Any 400 level courses offered in the Department of Atmospheric and Oceanic Science on a regular basis, or from a list of non-permanent electives that will be offered by research scientists, regular faculty from Atmospheric and Oceanic Science, or members of the Earth System Science Interdisciplinary Center (ESSIC)
- Courses offered by the Departments of Geology and Geographic Sciences, such as:
    - GEOL437 Global Climate Change: Past and Present
    - GEOL452 Watershed and Wetland Hydrology
    - GEOG446 Applied Climatology
    - GEOG447 Advanced Biogeography

- GEOG472 Remote Sensing

Middle Eastern Studies

History (HIST)
2115 Francis Scott Key Hall, 301-405-4265
http://history.umd.edu/undergraduate/programs/middleeast

Advisor: Antoine Borrut (aborrut@umd.edu); 301-405-7448

Requirements: 15-18 credits (5 courses; some language courses carry more than 3 credit hours per course) towards the Minor in Middle Eastern Studies. Coursework must be distributed to meet the overlapping requirements below. (For example, HIST120: Islamic Civilization can be used to meet both the pre-modern requirement and the Arab world requirement, but does not count doubly in terms of credit.)

6 credits *(2 courses) in Area distribution**:*** At least one course in each of two of the following Area categories: (a) the Arab world; (b) Iran and the Persian/Iranian world; (c) (Middle Eastern) Jewish and Israel; (d) Turkish and Ottoman; and (e) Middle Eastern Diasporas and All Middle East. Other areas of concentration may be considered and require the director's approval.

6 credits *(2 courses) in Pre-Modern**:*** At least two courses (6 credits) must focus on the pre-modern period (the 7th century through the 19th century). Students may fulfill this requirement through their area distribution or elective courses.

3 credits *(1 course) in Electives**:*** The fifth course may be chosen from the list of approved Middle East Studies courses. A language course of 3 or more credits may be used to satisfy this requirement. Advanced Arabic, Persian, Hebrew, or Turkish language courses that are content courses rather than grammar-based can be used for the Elective category or count toward Area Distribution and/or Pre-Modern, depending on subject matter.

Additional requirements:

- A minimum of 3 courses (9 credits) must be at the upper level (3xx- or 4xx-level).
- All credits must be earned with a grade of "C-" or above (no Pass/Fail option).
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses in each category is available from the academic advisor of the minor and on MESM's webpage.
- Only one 1xx or 2xx-level or grammar based course in Arabic, Hebrew, Persian, or Turkish may be credited toward the Minor.
- At least six credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- A maximum of two courses can count towards both the major and the minor.
- Courses cannot count towards multiple minors.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Military Studies

Air Force ROTC
301-314-3242
www.afrotc.umd.edu/minor.html
afrotcdet330@umd.edu

The minor in Military Studies provides students with the opportunity to study the U.S. military and more specifically the U.S. Air Force. Students seeking a minor in Military Studies are not required to be members of the Air Force ROTC program. This minor enables students to develop a secondary academic experience which may serve them in the future. The minor may also alert potential employers to the student's knowledge in a minor field of study.

The Military Studies minor consists of the courses identified below (Required and Electives), and is open to any student at the University of Maryland. Students seeking a minor in Military Studies must be approved by the Director of Air Force ROTC and be advised by instructional personnel in that office.

A. Required Courses (12 credits)
All students are required to take the four upper-level Air Science courses.
ARSC300: Management and Leadership I (3 credits)
ARSC301: Management and Leadership II (3 credits)
ARSC400: National Security Forces in Contemporary American Society I (3 credits)
ARSC401: National Security Forces in Contemporary American Society II (3 credits)

At the 300 level, students focus on case studies in effective leadership, management, and team-building. Readings explore topics such as accountability, motivation, teamwork, and ethical and moral leadership. These exercises help students develop critical thinking and problem solving skills, as well as effective professional writing.

At the 400 level, students study military policies, doctrine, and strategy, especially as related to areas of the world that are in crisis or transition. Special units are included on Europe, South Asia, East Asia, Latin America, Russia, and the Middle East to prepare students to function effectively in today's multi-ethnic, multi-cultural societies at home and abroad. Students also explore problem areas in military personnel management, including sexual harassment awareness, suicide awareness, and guidelines for working with civilian personnel. Capstone projects and activities for each student are part of the 400-level curriculum.

B. Elective Courses (6 credits)
In addition to the four required courses, students complete two additional courses, one each from Global Affairs and Military Affairs as listed below. Other courses may be substituted with approval of the minor advisor and Advisory Committee. Students will be advised on the options for seeking BMGT courses.

Global Affairs
GVPT280: Comparative Politics and Governments (3) (GVPT 100)
HIST224: Modern Military History, 1494 - 1815 (3)
HIST225: Modern Military History, 1815 - Present (3)
HIST240: Europe in the Twentieth Century (3)
HIST266: The United States in World Affairs (3)
HIST314: Crisis and Change in the Middle East & Africa (3)

Military Affairs
BMGT360: Human Resource Management (3)
BMGT364: Management and Organization Theory (3)
GVPT354: Peacebuilding, Post-Conflict Reconstruction, & International Development (3) (Sophomore standing)
GVPT360 Introduction to International Negotiations (3)
SOCY462: Women in the Military (3) (6 credits of SOCY or department permission)
SOCY463: Sociology of Combat (3) (6 credits of SOCY or department permission)
SOCY464: Military Sociology (3) (6 credits of SOCY or department permission)
SOCY465: The Sociology of War (3) (6 credits of SOCY or department permission)

Restrictions

- Courses completed in one minor may not be used to satisfy the requirements in another minor.
- No more than six of the required credits (or two courses) may be taken at an institution other than the University of Maryland, College Park.
- At least six upper division credits applied to the minor must be taken at the University of Maryland, College Park.
- All courses presented for the Minor must be passed with a grade of "C-" or better.
- Course work other than that listed in section B must be approved by the Air Force ROTC advisor and the ROTC Advisory Committee.

Music Performance

School of Music
2110 Clarice Smith Performing Arts Center, 301-405-5549
www.music.umd.edu

This minor provides students with high-level training in instrumental or vocal performance. Four semesters of individual study are taken concurrently with four semesters of ensemble. MUSC130 and MUSC140 provide basic historical and theoretical background in support of performance studies. Admission to the minor is based on successful completion of a performance audition before a faculty committee prior to enrolling in the minor. Audition information can be found at www.music.umd.edu.

Eighteen credit hours consisting of the following:

- Four semesters of applied lessons (MUSP302, 303, 402, 403)
- Four semesters of ensemble (chosen from MUSC129, 229, 329)
- MUSC130 Survey of Music Literature
- MUSC140 Fundamentals of Music

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

Students who fulfill minor requirements will receive a minor on the official transcript. Please contact the School of Music Office for more information.

Nanoscale Science and Technology

Maryland NanoCenter
Kim Engineering Building
www.nanocenter.umd.edu/education/nano_minor/nano_minor.php

Continued growth in the field of nanometer scale science and technology (NS&T) has led in the past several years to many technological advances in devices and materials structured at the nanometer scale. The Interdisciplinary Minor Program of Study in Nanoscience and Technology is intended to prepare participating students for a career in this rapidly developing field. This program draws upon the considerable expertise in nanoscience at the University of Maryland, in departments distributed among two schools: The Clark School of Engineering, and the College of Computer, Mathematics and Natural Sciences. Students take courses in Fabrication/Synthesis and Characterization, which emphasize the experimental side of NS&T, as well as Fundamental Science and Specialization Electives, which teach the underlying principles and directions, and include underlying theory and the motivations for NS&T. Visit the web site http://www.mse.umd.edu/undergraduate/nanominor for more information.

Neuroscience

Program in Neuroscience and Cognitive Science
2143 Biology-Psychology Building, 301-405-5866
http://www.nacs.umd.edu

The minor in Neurosciences will give the highly qualified and motivated undergraduate an opportunity to study Neuroscience. The emphasis includes study in systems, cognitive, and computational neuroscience in a manner that crosses the traditional boundaries of Psychology, Biological Sciences, and other related disciplines. The minor is most appropriate for students who already have a background in the biological sciences or psychology.

- All majors are eligible for the minor except students in the Physiology & Neurobiology (PHNB) track in Biological Sciences (BSCI).
- There are a number of science course prerequisites for the required and elective classes. Students should carefully review the prerequisites for all courses listed for the

Neurosciences minor. A student without a sufficient science background may not be able to complete the minor in the allotted credits.
- Students may only count a maximum of two courses (6-8 credits) toward both their major degree requirements and the Minor in Neurosciences.

Eligibility and Application to the Minor

In order to apply for the Minor in Neurosciences, a student must have:

1. Completed at least 30 college credits and at least 15 credits at UM
2. Earned at least a "C-" in BSCI170&171 and CHEM131&132 or have AP equivalents
3. Earned at least a "C-" in PSYC301 or BSCI353
4. Be in good academic standing with the University

Applications for the Minor in Neurosciences will be considered three times each year on October 1, March 1, and June 1. Students will be notified via email regarding the status of their application within three weeks of the submission deadline so that students will know whether or not they are accepted prior to early registration for the next semester.

Interested students may submit applications electronically via the Neurosciences and Cognitive Sciences (NACS) Program website at www.nacs.umd.edu.

Course Requirements

There are five required courses (11-14 credits) and two elective courses (6-8 credits) for a total of 17-22 credits to complete the minor. All courses used to satisfy the requirements of the minor must be completed with a grade of "C-" or better. Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements. A list of required courses and eligible electives can be found on the program website at www.nacs.umd.edu.

Nuclear Engineering

Mechanical Engineering (ENME)
2181 Engineering Classroom Building, 301-405-2410
www.enme.umd.edu/undergrad/minors/nuclear-eng-minor

Contact Dr. G.A. Pertmer (pertmer@umd.edu) for further information.

The minor in Nuclear Engineering provides the engineering student with the understanding of nuclear engineering and its application to many different fields, such as power generation, reactor operation, and industrial uses. Students in the minor will learn the fundamentals of nuclear reactor engineering, radiation interactions and measurement, power plant design concepts, and reactor safety. The minor is open to any student in the Clark School of Engineering.

Requirements for Minor

To successfully complete the minor in nuclear engineering, a student must complete a total of 15 credits (5 3-credit courses). All courses must be completed with a grade of "C-" or higher. A maximum of two of the required five courses can be used to satisfy requirements of the student's major (with approval of the major department).

All students pursuing the minor will be required to take the following four courses:

- ENME430 - Fundamentals of Nuclear Reactor Engineering
- ENME431 - Nuclear Reactor Systems and Safety
- ENME432 - Reactor and Radiation Measurements Laboratory
- ENME472 - Capstone Design Project (Nuclear Topic)

The fifth course for the minor will be selected, with the help of the student's minor advisor, based on student interest. Some possible choices include:

- ENME488 - Special Problems in Mechanical Engineering
- ENME489 - Special Topics is Mechanical Engineering (Student would select an appropriate course from a number of special topics courses taught each semester in the Mechanical Engineering Department)
- ENRE447 - System Safety Engineering
- ENMA422 - Radiation Effects on Materials
- ENEE474 - Power Systems

Students who fulfill minor requirements will receive a notation on their official transcript.

Persian Studies

School of Languages, Literatures, and Cultures
www.persian.umd.edu

This 15-credit minor will provide students with a background in linguistic, literary, and cultural aspects of the study of Persian, including the cultures of Iran, Afghanistan, Persian-speaking Central Asia, and the Persian diaspora. Students will work toward linguistic competence in speaking, reading, writing, and listening. Additionally, students will be introduced to Iranian culture in its diverse perspectives, practices, and products. The Minor in Persian Studies complements a range of professions, which include careers in education, engineering, government, journalism, the arts, business, and communication.

- A minimum of 9 credits must be earned through courses taught in Persian.
- Up to 6 may be earned from PERS courses taught in English.
- A minimum of 9 credits must be at the 3xx or 4xx level.
- All courses presented for the minor must be passed with a grade of "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.

- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.

No courses applied to the minor may count toward another minor. All students planning to pursue the Minor in Persian Studies should contact the undergraduate advisor for Persian, who will be responsible for oversight and record keeping.

Prerequisites (14 credits):
PERS101 Elementary Persian I (4 credits)
PERS102 Elementary Persian II (4 credits)
PERS201 Intermediate Persian I
PERS211 Intermediate Conversation

There are no prerequisites for students with equivalent knowledge.

Course requirements:
A. Courses taught in Persian (at least 9 credits)

B. Persian Studies Courses Taught in English (up to 6 credits; no prerequisites)

To make an appointment to explore or declare a minor, go to:
www.arhu.umd.edu/undergraduate/academics/minors

Philosophy

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

The requirements for a minor in Philosophy are as follows:

A total of at least 18 hours (six courses, at least three of which must be at least 3xx-level or above) in philosophy, not counting internship course (PHIL386). For a course to count toward a student's minor, the grade in the course must be "C-" or above. For students who matriculated in September 2012 or later, the average of all grades counted toward the minor must be 2.0 or greater. Therefore, grades of "C-" will have to be balanced with higher grades. ("C-" counts as 1.7 toward the GPA) Candidates for the minor must satisfy the following distribution:

- at least one course numbered 2xx or above in the history of pre-twentieth century philosophy

- at least one course numbered 2xx or above in value theory (including aesthetics and political philosophy as well as ethics)
- at least one course numbered 2xx or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge)

Physics

1120 Physics Building, 301-405-5979
umdphysics.umd.edu
ugrad@physics.umd.edu

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major. The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields (PHYS260 or PHYS272) and waves (PHYS270 or PHYS273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS174, PHYS261, or PHYS271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from the list below.

- Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor.

- All courses must be completed with a grade of "C-" or better to be counted towards the minor.

- No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits.

- Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

		Credits
	Courses required for the minor	**7**
	One from:	
PHYS174	Physics Laboratory Introduction	1
PHYS261	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory	1
PHYS271	General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory	1
	One from:	
PHYS272	Introductory Physics: Fields	3
PHYS260	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism	3
	One from:	

PHYS273	Introductory Physics: Waves	3
PHYS270	General Physics: Electrodynamics, Light, Relativity and Modern Physics	3
	Three from the following:	*9-12*
PHYS371	Modern Physics	3
PHYS373	Mathematical Methods for Physics II	3
PHYS375	Experimental Physics III: EM Waves, Optics & Modern Physics	3
PHYS401	Quantum Physics I	4
PHYS402	Quantum Physics II	4
PHYS404	Introductory Statistical Thermodynamics	3
PHYS410	Classical Mechanics	4
PHYS411	Intermediate Electricity and Magnetism	4
PHYS474	Computational Physics	3

Prerequisites
MATH140 (4 credits), MATH141 (4 credits), MATH241 (4 credits), MATH240 (4 credits), MATH246 (3 credits), and Physics161 (or Physics171) (3 credits) are prerequisites for some of the courses in this program.

Contact
Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department:

1120 John S. Toll Physics Building; 301-405-5979
email: ugrad@physics.umd.edu

Planetary Sciences

The minor in Planetary Sciences will provide students with a broad understanding of the application of the methods of astronomy and geology to the study of the Solar System, and develop the students' appreciation of how issues in the study of planets connect with larger issues in those sciences. It is intended for all students with an interest in the study of the Solar System, be it professional or avocational. In addition to Astronomy and Geology majors, it dovetails with the professional goals of Environmental Science and Policy, Environmental Science and Technology, Chemistry, Physics, Physical Sciences, and Secondary Education majors.

Building on a three-course base of fundamental knowledge of astronomy, geology and an introduction to the Solar System, the program is completed by three advanced courses addressing specific topics adding depth to the student's knowledge of planetary astronomy and to the geologic tools of the planetary scientist. Students are required to sample from optional courses from both departments. The Joint Minor in Planetary Sciences does not require significant prerequisite knowledge, however some optional courses may require prerequisites of 100-level courses in chemistry, mathematics, or geology.

Courses required for the proposed minor are:

REQUIRED:

One of the following:

- ASTR100 Introduction to Astronomy (3)
- ASTR101 General Astronomy (4)
- ASTR120 Introductory Astrophysics - Solar System (3)

One of the following:

- GEOL100/110 Physical Geology/Physical Geology Lab (4)
- GEOL120/110 Environmental Geology/Physical Geology Lab (4)

One of the following:

- ASTR330 Solar System Astronomy (3)
- ASTR430 The Solar System (3)
- GEOL212 Planetary Geology (3)

Plus three from the following*:*
At least one choice must be from Geology and one from Astronomy. At least six credits from the list below and nine credits overall must be at the 300-400 level.

- ASTR220 Collisions in Space - The Threat of Asteroid Impacts (3)
- ASTR230 The Science and Fiction of Planetary Systems (3)
- ASTR380 Life in the Universe - Astrobiology (3)
- ASTR498 Special Problems in Astronomy (3)
- GEOL322 Mineralogy (4)
- GEOL340 Geomorphology (4)
- GEOL412 Geology of Terrestrial Planets (3)
- GEOL437 Global Climate Change, Past and Present (3)
- GEOL499 Special Problems in Geology (3)
- Or another appropriate astronomy or geology course approved in advance by the Astronomy or Geology advisor (3-4)

Depending on the optional course taken, there is a total of 19-22 required credits (see prerequisites). All courses presented for the minor must be passed with a grade of "C-" or better.

Portuguese Language, Literature, and Culture

School of Languages, Literatures, and Cultures
www.portuguese.umd.edu

This 15-credit minor will provide students with a solid overview in the linguistic, literary, and cultural aspects of Portuguese-speaking countries, with an emphasis on Brazil.

Prerequisite: Portuguese 104 and 204 (or equivalent).

Requirements: Students will choose the fifteen credits from among the following courses: Portuguese 205, 224, 228*, 311, 320, 321, 350, 378*, 408, 409, 421, 470, 478*.

**Portuguese 228, 378, 478 are conducted in English. The majority of written assignments will be in Portuguese for those students in the minor program.*

- A maximum of 6 credits may be applied to the minor from courses taken at other institutions.
- A maximum of 9 credits may be applied from a University of Maryland Study Abroad program.
- All courses must be passed with a grade of C- or better.
- An overall GPA of 2.0 in the minor is required for graduation.

All administrative records and advising will be handled by the advisor for the Portuguese Program: Regina Igel, ri@umd.edu, 301-405-6457.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Professional Writing

1220 Tawes Hall
301-405-3763
pwminor@umd.edu

For students who wish to specialize in public and professional writing as an area of expertise and for students who wish to communicate their discipline through writing, the Professional Writing minor offers opportunities to engage deeply with the theory and practice of writing, editing, and designing both print and digital documents for professional workplaces, civic organizations, and community deliberations. Students will develop electronic portfolios throughout their minor coursework as a means to showcase their professional writing knowledge and skills. Writing-focused internships will be encouraged, although not required, in the later stages of coursework.

Successful completion of the Professional Writing minor requires the following:

A. Fifteen credit hours of coursework consisting of:

1) Three credits in ENGL297: Introduction to Professional Writing

2)Twelve credits from the following courses, including at least nine credits at the 3xx or 4xx level and three credits at the 4xx level:

ENGL281: Standard English Grammar, Usage, and Diction (See Note 1)

ENGL282: How Rhetoric Works: Persuasive Power and Strategies

ENGL291: Writing, Revising, Persuading

ENGL292: Writing for Change

ENGL293: Writing in the Wireless World

ENGL381: MGA Legislative Seminar (See Note 2)

ENGL384: Concepts of Grammar (See Note 1)

ENG388M: Writing Internship: Maryland General Assembly Pre-Professional Writing Internship (See Note 2)

ENGL388P: Writing Internship: Pre-Professional Writing Skills Internship

ENGL388V: Undergraduate Teaching Assistant (UTA) Internship in Academic Writing or Professional Writing

ENGL388W: Writing Internship: Writing Center Internship

Professional Writing Program Courses:

ENGL390: Science Writing

ENGL391: Advanced Composition: Argumentation

ENGL392: Legal Writing

ENGL393: Technical Writing

ENGL394: Business Writing

ENGL395: Writing for the Health Professions

ENGL398A: Writing for the Arts

ENGL398B: Writing for Social Entrepreneurship

ENGL398C: Writing Case Studies and Investigative Reports

ENGL398E: Writing for Economics

ENGL398L: Scholarly Writing in the Humanities

ENGL398N: Writing for Non-Profit Organizations

ENGL398R: Writing Non-Fiction Narratives

ENGL398V: Writing for the Environment

ENGL487: Foundations of Rhetoric

ENGL488: Topics in Advanced Writing

ENGL493: Advanced Writing Theory and Practice

ENGL494: Editing and Document Design

B. Submission of an electronic professional writing portfolio

Successful completion of the Professional Writing minor also requires the submission of a writing portfolio during a student's final semester. This portfolio must be submitted to the minor advisor by November 1 for fall semester graduation or April 1 for spring semester graduation. The electronic portfolio must contain, at a minimum, the following material: 1. A welcome page; 2. Six finished, polished texts written by the student in Professional Writing minor courses; and 3. A reflective essay that analyzes how these documents demonstrate the student's achievement of the minor's learning outcomes. The minor advisor will confirm that each portfolio meets these minimum requirements.

Notes:

1. Credit toward the minor will be granted for only one of these two courses: ENGL281 or ENGL384.

2. ENGL381 is a prerequisite for ENGL388M.

3. A student cannot count toward the Professional Writing minor the PWP course that he or she takes to fulfill the Fundamental Studies Professional Writing requirement for the University of Maryland General Education Program. Only a second PWP course can be used to fulfill the Professional Writing minor requirement. Advisors will encourage students to select a second PWP course only if it complements the students' academic or professional goals.

4. Students may satisfy up to three credits of the nine-credit 3xx- or 4xx-level coursework requirement through documented writing-intensive professional or internship experience. Students must submit an acceptable portfolio of workplace writing to the Professional Writing minor advisor in order to have these three credits count toward their minor.

5. Following university policy, English majors may count two Professional Writing minor courses toward both the requirements for the English major and the Professional Writing Minor.

Students must be accepted into the minor no later than the start of the semester before the semester in which they plan to graduate. All courses presented for the minor must be passed with a grade of "C-" or better. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Project Management

Minor In Project Management

Civil and Environmental Engineering (ENCE)
1173 Engineering Classroom Building, 301-405-7768
http://pm.umd.edu/program/undergraduate-minor-in-project-management/

Contact Qingbin Cui, Project Management Minor Advisor (cui@umd.edu) or visit the web site.

The Minor in Project Management is open to all students in the A.J. Clark School of Engineering or the School of Architecture, Planning & Preservation that have earned at least 60 credit hours and have a GPA of 3.0 or higher.

A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript.

A total of 15 credits are required. All courses for the minor must be passed with a grade of "C-" or better.

Core Courses
ENCE320 Introduction to Engineering Project Management (3)
ENCE422 Project Cost Accounting & Economics (3)
ENCE423 Project Planning, Scheduling, & Control (3)
ENCE424 Communications for Project Managers (3)

Elective Courses (one)

ENCE 421 Legal Aspects of Architectural & Engineering Practice (3)

ENCE 426 Construction Documentation and BIM Applications in Engineering and Construction (3)

Public Leadership

Maryland School of Public Policy
http://publicpolicy.umd.edu/plminor
plminor@umd.edu
1118 Taliaferro

- The Public Leadership minor will allow students to examine today's most pressing issues. Matters facing our world leaders such as, the global environment, human rights, the criminal justice system, equity in education, diversity, poverty, and inequality will be analyzed on multiple levels. Students will face these same challenges in their courses while learning to critically assess and recommend viable solutions through effective leadership for the public good. In order to achieve this, the School proposes a minor to engage students in leadership for the public good and effective citizenship. Additionally, the minor serves as a feeder for the School's graduate program.

  Objectives and Learning Outcomes

  The minor in Public Leadership has the following objectives:

  1. To develop students' knowledge of leadership theories;

  2. To offer undergraduate students a coherent and integrated public leadership curriculum;

  3. To give undergraduate students an education providing knowledge and skills appropriate to the understanding and exercise of appropriate leadership in their chosen professions, organizations, and communities;

  4. To create and support a community of young public leaders who hold a common interest in leadership studies;

  5. To offer students who are interested in public service a place to begin to build an intellectual foundation which will allow them to address the problems of the next decade;

  6. To prepare our students for the responsibilities of leadership and citizenship in a complex world; and

  7. To gain experience in applying leadership theories and concepts in a structured internship experience.

  Requirements: 15 approved credits, at least 9 of which are 300- or 400-level. All courses taken for a minor must be completed with a minimum grade of C-. A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required. Notes: No more than 6 credits may overlap between your major and the Public

Leadership Minor, unless otherwise approved by your major. Additionally, courses completed in one minor may not be used to satisfy the requirements in another minor.

At least **3 credits** from one of the following Core courses:

- **PLCY 100 Foundations of Public Policy; (3 credits):** Students will be introduced to public policy as a discipline, with a brief overview of the actors and institutions involved in the process, and familiarize themselves with the kinds of problems typically requiring public action. The course will examine these problems from a multijurisdictional and multisector perspective. Specific policy areas examined include education policy, health policy, economic and budgetary policy, criminal justice policy, environmental policy, and national and homeland security policy. The course should permit students to have broad foundational exposure to the field that will give them a solid base for more advanced courses.
- **PLCY 201 Leadership for the Common Good; (3 credits):** Two hours of lecture and one hour of discussion/recitation per week. This course is designed to provide undergraduate students an introduction to leadership theory and civic studies and a chance to practice a core set of practical skills relevant to various kinds or leadership, such as transformational and collaborative leadership.
- **PLCY 302 Leadership: Philosophy, Policy and Praxis; (3 credits**): Leadership as a search for meaning, identity and purpose are explored. Also introduces major philosophical traditions, from the ancient world to the modern one, and encourages students to ground their leadership interests and aspirations in a disciplined process of self-reflection, critical thinking and inquiry.

The remaining 12 credits will be selected by the student from a list of approved signature courses and electives. A credit-bearing experiential learning option for which a grade is earned, e.g., internship, study abroad, research project, etc. can count as part of the remaining 12 credits. The experiential learning option must be linked to public leadership and approved in advance.

Please see the Public Leadership Minor website (www.publicpolicy.umd.edu/plminor) or email plminor@umd.edu for additional information on requirements and the application process.

Real Estate Development

School of Architecture, Planning and Preservation
Architecture Building, 301-405-8000

Undergraduates from across campus with an interest in real estate can now complete a minor in real estate development. The minor will provide students with a basic understanding of the essential concepts related to sustainable real estate development. Classes cover the development process; the basics of real estate finance, tax and investment; urban planning and design; and the unique roles played by government and the private sector in real estate development, among others.

Admissions Requirements
This Minor is available to all Maryland undergraduate students with a GPA of 2.0 or higher who have completed ARCH 271/RDEV 250, People, Planet and Profit: Building Sustainable Places with a "C-" or better.

Application Process
Interested students must complete an application and meet with the Director of the Real Estate Development minor. See: http://www.arch.umd.edu/arch/minors-arch for the online application and a scheduling app to make an appointment.

Course Requirements
The Minor in Real Estate Development consists of 15 credit hours. Students must complete all the required courses with a grade of "C-" or better and have a minimum UMD GPA of 2.0 for the minor.

The following 4 courses are required:

ARCH 271/RDEV 250 – People, Planet and Profit: Building Sustainable Places
RDEV 270 – Tax and Accounting for Real Estate Development. This requirement can also be met in any of the following ways:

> Equivalent accounting course at another 4-year institution or community college if it qualifies for transfer credit at UMD; BMGT 220 (available to all UMD undergraduates) or BMGT 210 + 3 credit economics class (only available to Robert H. Smith School of Business minors).

RDEV 350 – Principles, Process and Practice of Real Estate Development
RDEV 450 – Foundations of Real Estate Finance and Investment

Plus, select one elective from a list of permitted electives that can be found at: http://www.arch.umd.edu/arch/minors-arch.

Religious Studies

Jewish Studies Program (JWST)
4141 Susquehanna Hall, 301-405-4975
www.religious-studies.umd.edu
jwst-contact@umd.edu

Religious Studies is an interdisciplinary field that enables students to study the texts, culture, history, beliefs, and practices of the religions of the world, present and past. The minor in Religious Studies draws from a wide range of departments and programs (including Anthropology, Art History, Classics, English, History, Jewish Studies, and Philosophy) and offers the opportunity for both in-depth and wide-ranging study. A required core course introduces students to religions of the world and to the academic study of religion (students may take either RELS 216 or RELS289I). In addition to this course, students are required to take three courses at the 3xx or 4xx-level and another two at the 1xx, 2xx, 3xx, or 4xx-level. Completion of coursework includes fulfillment of a breadth requirement, which demonstrates that students have been exposed to a variety of religious traditions, periods, and geographic regions. Selection of courses in consultation with the advisor will ensure that students complete this breadth requirement.

Many courses are now offered with the RELS prefix. Other regularly-offered courses that may be counted toward the minor are: ARTH200, ARTH201, ARTH250, ARTH290, ARTH314, ARTH376, CHIN316, CLAS170, CLAS470, ENGL262, GERM283, GERM287, HIST111, HIST120, HIST282, HIST284, HIST306, HIST332, HIST480, PHIL236, and many courses in JWST and HONR. Other courses may be taken with the permission of the minor advisor.

Requirements:

- **RELS216 or RELS289I:** Introduction to the Study of World Religions.
- **Three courses at the 3xx-level or above.** These courses can be in any of a variety of subjects, chosen in consultation with an advisor. See Breadth requirement below.
- **Two additional courses at the 1xx, 2xx, 3xx, or 4xx-level.** Chosen in consultation with an advisor. See Breadth requirement.

Breadth requirement
The breadth requirement ensures that students are exposed to a diversity of religious phenomena. Most Religious Studies students will complete this requirement simply by selecting from the wide variety of courses available to them. Students with particular interests (in a single approach, like Art History, or a single setting, like contemporary North America) will need to take at least one course that falls outside their particular focus of interest. Students will need to demonstrate:

A. Exposure to a diversity of religious traditions (understood to include African religions, Buddhism, Christianity, Hinduism, Islam, and Judaism, among others), in coursework that extends beyond a single geographic area (such as the Americas, Asia, or the Mediterranean world).

B. Exposure to diverse temporal periods (including antiquity, the medieval and early modern periods, and modernity).

C. Experience of multiple approaches to religious phenomena or the study of religion (for example, art history, philosophy, historical approaches, and comparative methods).

D. Depth: At least one course must incorporate the focused study of a single religious tradition or cluster of traditions (see item A for traditions).

Examples: A student with academic focus in religions of the ancient Mediterranean might complete the breadth requirement with a single course on Asian religions. A student concentrating on art historical approaches to religion might take one course in philosophy or literature. A student whose interests run to comparative and cross-cultural coursework might take a course in the focused study of a single tradition.

- A minimum of 9 credits must be at the 3xx or 4xx-level.
- All courses must be passed with a grade of "C-" or above.
- An overall GPA of 2.0 in the minor is required for graduation.
- A list of qualifying courses is available from the advisor to the RELS program.
- At least six credits of 3xx or 4xx-level credit must be taken at the University of Maryland.
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may also be applied to a major.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors.

Remote Sensing of Environmental Change (RSEC)

Geographical Sciences (GEOG)
2108M LeFrak Hall, 301-405-4073
www.geog.umd.edu
geog-advise@umd.edu

Description:

The Remote Sensing of Environmental Change minor program (RSEC) is designed to build students' understanding global environmental change in order to assess their impacts on the physical and human landscapes, and to use remote sensing as an analytical tool for identifying the impacts. Students in the minor program will receive technical training in remote sensing to examine how extreme environmental events shape human society and ecosystems from the interdisciplinary perspective afforded by the field of Geography.

Admission to the Program:

There are no special requirements for the Minor Program in Remote Sensing of Environmental Change. The Department of Geographical Sciences welcomes students from every area of study. GIS and ENSP students are also welcome to enroll in this minor.

Requirements:

• All credits for the minor must be taken in the Department of Geographical Sciences at the University of Maryland, College Park.

• All courses must be completed with a grade of "C-" or better.

• No more than **six credits** are to be included in the Minor and student's major, supporting courses, and college requirements.

The Required Curriculum: **(18 credits)**

Foundation Course (3 credits)

• **Natural Disasters:** GEOG140 (3 credits)

Or

• **Introduction to Methods of Geospatial Intelligence and Analysis:** GEOG170 (3 credits)

Technical Geography Courses (6 credits)

• **Introduction to Remote Sensing:** GEOG372 (3 credits)

• **Advanced Remote Sensing:** GEOG472 (3 credits)

Choose one Physical Geography Course (3 credits)

• **Geomorphology:** GEOG340 (3 credits)

• **Biogeography:** GEOG342 (3 credits)

• **Climatology:** GEOG345 (3 credits)

Choose one Human Dimension of Global Change Course (3 credits)

• **Regional Geography: China** GEOG328B (3 credits)

• **Regional: Sub-Saharan Africa:** GEOG328C (3 credits)

• **Regional: Latin America:** GEOG313 (3 credits)

• **Society and Sustainability**: GEOG330 (3 credits)

• **Intro to Human Dimensions of Global Change:** GEOG331 (3 credits)

• **Economic Geography:** GEOG332 (3 credits)

Choose one Advanced Integrated Course (3 credits)

• **Land Use, Climate Change, and Sustainability:** GEOG415 (3 credits)

• **Modeling Human-Environment Interactions:** GEOG416 (3 credits

• **Cultural and Natural Resource Management:** GEOG431 (3 credits)

• **Coastal Oceans:** GEOG441 (3 credits)

• **Biogeography & Environmental Change:** GEOG442 (3 credits)

Resource and Agricultural Policy in Economic Development

Agricultural and Resource Economics (AREC)
2200 Symons Hall
www.arec.umd.edu

This minor provides students with the economic knowledge necessary for analysis and understanding of policies affecting agriculture and resource use in developing countries. The 400-level courses are a truncated version of the upper-level course requirements of the AREC major. These courses focus particularly on economic analysis relevant to agricultural and development policy. AREC365 is a course on world food supply and demand intended primarily for non-AREC majors. AREC250 is an introductory course giving students an overview of the subject.

AREC240 **OR**	Introduction to Economics and the Environment **OR**	3
AREC250	Elements of Agricultural and Resource Economics	3
AREC345	Global Poverty and Economic Development	3
AREC365	World Hunger, Population and Food Supplies	3
AREC433	Food and Agricultural Policy	3
AREC445	Agricultural Development, Population Growth, and the Environment	3

AREC453	Natural Resources and Public Policy	3
AREC422	Econometric Applications in Agricultural and Natural Resource Economics	3
AREC446	Sustainable Economic Development	3
	Please choose five courses from the list above. Nine credits must be at the 300-400 level. *Another AREC course can be substituted for one of the courses listed with permission of the Undergraduate Advisor.*	
	Total Credits	**15**

Rhetoric

Department of Communication and Department of English
http://rhetoric.umd.edu

Rhetoric is the theory of persuasive communication, both written and spoken. The minor in rhetoric has been designed for students who want to know the principles and skills of practical persuasion in its varied contexts. The program will be of value for all students wishing to improve their writing and speaking skills and especially useful for those students who plan careers in business, management, law, government, and education. The minor in rhetoric is an interdisciplinary program offered through the cooperation of the Department of English and the Department of Communication.

Fifteen semester hours of coursework are required:

A. Six semester hours from the course list in Rhetorical Theory and Analysis of Discourse
B. Six semester hours from the course list in Writing and Speaking Skills
C. Three semester hours in electives from either section of the Rhetoric Course List
D. At least nine of the fifteen semester hours must at the 3xx-level or higher (including at least six hours at the University of Maryland, College Park)
E. No more than six of the fifteen semester hours may be taken at an institution other than the University of Maryland, College Park
F. No more than six of the fifteen semester hours may count toward the student's major and supporting courses
G. At least 3 semester hours must be taken in the English Department, and at least 3 semester hours must be taken from the Department of Communication
H. No course used to satisfy a Fundamental Studies requirement may count toward the minor
I. No course used to satisfy the requirements of another minor may count toward the Rhetoric Minor
J. No course grade below the grade of "C-" may count toward the minor
K. An overall GPA of 2.0 in the minor is required for graduation

Entering the Minor:

The College of Arts and Humanities has established a maximum enrollment in the rhetoric minor. Students wishing to pursue the minor should check the Arts and Humanities minor website: http://www.arhu.umd.edu/undergraduate/academics/minors, or the Rhetoric Minor website: http://rhetoric.umd.edu, for the current status of minor admissions.

When enrollment in the minor is open, students should review the requirements above, make tentative selections of courses to satisfy these requirements, and meet with one of the advisers below. Students will officially declare the minor in rhetoric during this advising session. The earliest possible advising meeting is recommended, however, because, under University rules for minors, no student may declare the minor during their final year of coursework.

Current course lists for the minor in Rhetoric can be found at:
http://rhetoric.umd.edu

Minor Advisors:

Michelle Murray Yang
Department of Communication
2114 Skinner Building
mlmurray@umd.edu
301-405-0873

Michael Israel
Department of English
3126 Tawes Hall
israel@umd.edu
301-405-2816

Students are encouraged to communicate with a Rhetoric Minor advisor at least once a semester to ensure that all courses being applied to the minor are eligible, and that all of the requirements for the minor are being fulfilled. For a senior-year audit of your minor requirements, or answers to other advising questions, please contact the advisor with whom you worked when adding the minor.

Russian Studies

School of Languages, Literatures, and Cultures
www.russian.umd.edu

The Minor in Russian Studies is a series of five courses to be chosen in consultation with the departmental advisor. The completion of a Minor in Russian Studies provides students with a broad background in Russian language, literature, and culture.

A minimum of fifteen credits/five courses* is required, to be chosen from among the following:

Courses taught in Russian:
RUSS201, 202, 210, 211, 301, 302, 303, 307, 321, 322, 381, 382, 401, 402,403, 404, 405, 406, 407, 409, 410, 411, 412, 431, 432, 433, 434, 473

Courses in English:
RUSS221, 222, 281, 282, 298, 327, 328, 329, 398, 439

Courses in SLAVIC may also be counted toward the Russian Studies Minor: SLAV469, 475, 479

Prerequisites for the minor: RUSS102 (Elementary Russian) or the equivalent as determined by the department

**Note that in most cases, five courses of 3-credits each will fulfill the 15-credit requirement. However, RUSS201 and 202 are 5 credit courses. If a student chooses to count these two courses as part of the minor, they are still required to complete three additional courses (for a total of five courses).*

- Courses taken through Study Abroad programs may be applied.
- A minimum of six credits must be earned from courses in Russian.
- A minimum of nine credits must be at the 3xx or 4xx level.
- Transfer credits (from study abroad or another US institution) may count toward the minor with approval of the department. In most cases, a maximum of six transfer credits will be approved.
- All courses counting toward the minor must be passed with a "C-" or better.
- An overall GPA of 2.0 in the minor is required for graduation.
- Substitutions of other departmental offerings may be approved by the advisor.

Oversight of the minor program will be through the normal academic processes of the Russian program in the School of Languages, Literatures, and Cultures. The Undergraduate Advisor will be responsible for ensuring that students are properly advised and that records are appropriately kept.

To make an appointment or declare a minor, go to: www.arhu.umd.edu/undergraduate/academics/minors

Soil Science

Environmental Science and Technology (ENST)
1457 Animal Sciences Building, 301-405-1193, shannonp@umd.edu
www.enst.umd.edu

The Soil Science minor will provide students with a sophisticated understanding of soil resources, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications.

Declared majors in the Conservation of Soil, Water and Environment area of concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Sciences.

Advising system for the minor:
The ENST Department has mandatory advising for each of its major and minor programs. Students are required to meet with their advisor at least once per semester. If you have any questions, please contact Shannon Pederson at shannonp@umd.edu.

Curriculum:

ENST200	Fundamentals of Soil Science	4

Select 13 credits from the ten courses listed below. At least two courses must be from Group A.

Group A - Underlying Principles

ENST411	Principles of Soil Fertility	3
ENST414	Soil Morphology, Genesis & Classification	4
ENST417	Soil Hydrology and Physics	3
ENST421	Soil Chemistry	4
ENST422	Soil Microbiology	3

Group B - Applications

ENST301, 2, 3	Field Soil Morphology I, II, III	1-3
ENST309	Advanced Field Soil Morphology	1
ENST423	Soil-Water Pollution	3
ENST430	Wetland Soils	3

Total Credits: A minimum of 17 credits are required to complete this minor.

Students attempting this minor will need MATH113 or higher. There are a total of 17 required credits in ENST classes, plus a 4 credit CHEM prerequisite. Depending on the pre-requisites needed, and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.

This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Horticulture and Crop Production, Animal Science, Landscape Architecture, Parks and Planning, Bioengineering, Civil Engineering, Environmental Engineering, Environmental Science and Technology, Natural Resources Management.

Spanish Language and Cultures

School of Languages, Literatures, and Cultures (SLLC)
www.spanish.umd.edu

Information

The minor in Spanish Language and Cultures is a series of five courses in Spanish to be chosen in consultation with the departmental advisor. Courses taken through Study Abroad programs may be applied. This 15 credit minor will provide students with a solid background in linguistic, cultural, and literary aspects of the study of Spanish.

Core Courses Required for the Minor

SPAN207 Reading and Writing in Spanish
SPAN301 Advanced Grammar and Composition I
SPAN303 Approaches to Cultural Materials in the Hispanic World

Other Required Courses

Following completion of the core sequence, students choose **two** courses from the following:

SPAN206 Review of Oral and Written SPAN for Native Speakers Educated in the United States
SPAN302 Advanced Grammar and Composition II
SPAN306 Spanish II for Native Speakers
SPAN310 Spanish Phonetics
SPAN307 Oral Communication Skills for Native Speakers of Spanish
SPAN315 Commercial Spanish I
SPAN316 Practicum in Translation I
SPAN317 Practicum in Translation II
SPAN318 Translation of Technical Texts
SPAN331 Spanish Culture, Civilization and Literature I: Medieval Times
SPAN332 Spanish Culture, Civilization and Literature II: Renaissance and Baroque
SPAN333 Spanish Culture, Civilization and Literature III: Modern Times
SPAN356 Literary Translation I
SPAN357 Literary Translation II
SPAN361 Latin American Literatures and Cultures I: From Pre-Colombian to Colonial Times
SPAN362 Latin American Literatures and Cultures II: From Independence to Nation Formation
SPAN363 Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism
SPAN415 Commercial Spanish II
SPAN417 Interpretation
SPAN425 Introduction to Hispanic Linguistics I: Basic Concepts
SPAN426 Introduction to Hispanic Linguistics II: Language In Use
SPAN448 Special Topics in Latin American Civilization
SPAN449 Special Topics in Spanish Civilization

All Spanish literature courses on the 4xx level

- All courses must be taught in Spanish.
- Native or heritage learners of Spanish should seek the advice of the Undergraduate Advisor for Spanish before choosing their courses.
- The minor is open to all students except Spanish majors.
- A grade of "C-" or better is required in each class.
- An overall GPA of 2.0 in the minor is required for graduation.
- A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a University of Maryland Study Abroad program.

To make an appointment to explore or declare a minor, go to
www.arhu.umd.edu/undergraduate/academics/minors

Spanish Language, Business, and Cultures

School of Languages, Literatures, and Cultures (SLLC)
www.spanish.umd.edu

Information

This 15 credit minor will provide students with a solid background in language, culture, and concepts important for business in the Spanish-speaking world.

Core Courses Required for the Minor

SPAN207 Reading and Writing in Spanish
SPAN301 Advanced Grammar and Composition I
SPAN303 Approaches to Cultural Materials in the Hispanic World

Other Required Courses

Following completion of the core sequence, students will complete:

SPAN315 Commercial Spanish I
SPAN415 Commercial Spanish II

All courses must be taught in Spanish.

Native and Heritage Speakers

Native speakers and all others with the ability to begin coursework at a high level should speak with the Undergraduate Advisor. **Heritage learners**, students from homes where Spanish is

spoken or who have had in depth exposure to Spanish, are encouraged to take a series of courses designed to enhance their skills.

Transfer Credits

A maximum of 6 credits may be applied to the minor from courses taken at other institutions. However, a maximum of 9 credits may be applied from a University of Maryland study abroad program.

Eligibility

The minor is open to all students except Spanish majors.

Application Process

Students should meet with the Minor Advisor during walk-in advising hours. The advising hours are always posted at 2211 Jimenez Hall, and are available on the Department of Spanish and Portuguese website, https://sllc.umd.edu/spanish/undergraduate/advising.

Statistics
1117 Mathematics Building, 301-405-5053
www-math.umd.edu

The Department of Mathematics offers a minor in Statistics for students whose majors are not Mathematics. The goal of the minor in Statistics is to provide the student with a substantial number of courses that are statistical in nature and involve a substantial amount of mathematics.

The requirements entail 16 credits, from I - IV:

I. MATH241 - Calculus III (Multivariable Calculus) (4 credits)

II. One of the three pairs of 3 credit courses: (6 credits)

STAT400 and STAT401
STAT410 and STAT420
STAT410 and STAT401

III. STAT430 (3 credits)

IV. One of the courses in a-e (3 credits):

(a) STAT440
(b) STAT470
(c) A third course in (II) not already taken to satisfy (II)
(d) ECON422
(e) or other courses as deemed appropriate

Other issues related to the minor in Statistics:

- The minor in Statistics is NOT open to Mathematics majors.
- The student will need to achieve at least a "C-" in each course for the minor in Statistics.
- A student may use a maximum of 2 courses to satisfy the requirements of both a major and the minor in Statistics.
- No more than 2 courses for the minor in Statistics may be taken at an institution other than the University of Maryland, College Park. In addition, no more than one upper-level course may be taken at an institution other than the University of Maryland, College Park.

The departmental advisor for this program is Professor Paul Smith (pjs@math.umd.edu).

Surficial Geology

Geology (GEOL)
1115 Geology Building, 301-405-4365
www.geol.umd.edu

This undergraduate minor recognizes concentrated study in Surficial Geology, a designated field in the College of Computer, Mathematical, and Natural Sciences. The award of a minor will be noted on the student's transcript at the time of graduation.

This minor may be earned by students not majoring in Geology and are administered by the Geology Undergraduate Studies Director. A grade of "C-" or better must be earned in all courses required for the minor.

		Credits
GEOL100/110	Physical Geology/Lab, **or**	4
GEOL120/110	Environmental Geology/Lab	4
GEOL123	Causes and Implications of Global Change	3
GEOL340	Geomorphology	4
	Two from:	
GEOL331	Principles of Paleontology	4
GEOL342	Sedimentation and Stratigraphy	4
GEOL435	Environmental Geochemistry	3
GEOL437	Global Climate Change Past and Present	3
GEOL444	Low Temperature Geochemistry	4
GEOL451	Groundwater, or	3
GEOL452	Watershed and Wetland Hydrology	3
GEOL499	Special Problems in Geology	3

Survey Methodology

Joint Program in Survey Methodology
University of Maryland
1218 LeFrak Hall
College Park, MD 20742
301-314-7911
jpsm-contact@umd.edu
http://jointprogram.umd.edu/

The undergraduate Minor in Survey Methodology is a cross-disciplinary program offered by the Joint Program in Survey Methodology (JPSM) within the College of Behavioral and Social Sciences (BSOS). Students in the program will explore the theoretical foundations of survey design and survey data collection, together with the practical application of this theoretical material. Completion of the minor will prepare students to enter careers in the Federal statistical system or any of the numerous private sector firms that collect survey data to inform decision-making, as well as for further graduate study in the field of survey methodology. In addition, students aspiring to careers in fields such as marketing, political consulting, economics or the social sciences that rest on the collection and use of survey data will benefit from the understanding of the data collection process that they will acquire.

Student Learning Outcomes

Whether collecting information from survey respondents or making use of data collected by means of such surveys, individuals in many fields require an understanding of the process of designing surveys and collecting survey data. Requisite knowledge areas include the principles of questionnaire design, selecting survey samples to represent populations of interest, modes of data collection, and the use of weights in the analysis of survey data, among other topics.

Upon completion of the proposed curriculum, students will:

- Have the knowledge needed to construct a new survey questionnaire or evaluate an existing survey questionnaire in accord with the basic principles of questionnaire design;
- Know how to identify potential sources of error in survey estimates and suggest strategies for minimizing those errors; and
- Be aware of various features of the design of sample surveys that may affect the analysis and interpretation of the resulting data.

18 credits are required for the minor as outlined below:

Statistics and Research Methods Courses (6 *to* 8 *credits)*

The design of survey samples and the analysis of survey data are inherently quantitative exercises. It is, therefore, important that anyone seeking to work in these fields of endeavor have a solid quantitative background. Students enrolled in the minor will be required to take two courses in statistics and research methods. Any of the following courses are appropriate choices

for the first of these two courses:

BIOM301 Introduction to Biometrics
CCJS200 Statistics for Criminology and Criminal Justice
ECON321 Economic Statistics
EDMS451 Introduction to Educational Statistics
GVPT422 Quantitative Political Analysis
PSYC200 Statistical Methods in Psychology
SOCY201 Introductory Statistics for Sociology
STAT400 Applied Probability and Statistics I
STAT410 Introduction to Probability Theory

Any of the following courses are appropriate choices for the second of the two courses:

ECON422 Econometrics
SOCY401 Intermediate Statistics for Sociologists
STAT401 Applied Probability and Statistics II
STAT420 Introduction to Statistics

There is enormous demand on campus for many of the courses listed as options for fulfilling the statistics/research methods requirement, especially the courses on the first list, and the number of seats available in these classes may be limited. Majors in the department that offers a course may receive priority for enrollment (e.g., CCJS200) or enrollment in a course may be restricted to majors (e.g., ECON321). In addition, there may be prerequisites associated with a particular course. Several of the courses listed in the first set of options require that the student have taken calculus and some of the courses listed in the second set of options require a particular first course as a prerequisite (e.g., STAT420 requires STAT410 as a prerequisite). The fact that a course is listed as an appropriate option for fulfilling the minor requirements does not imply that students necessarily will be able to enroll in that specific course. Students interested in the minor will be asked to consult with their JPSM Advisor about the best way to complete the two course statistics and research methods requirement given their individual circumstances. Courses covering similar material, including courses offered at other institutions, may be accepted as substitutes for the listed courses.

SOCY201 and SOCY401 are 4-credit rather than 3-credit courses. For students choosing these courses to fulfill the requirements of the minor, the minor will be an 18 credit program. Students admitted to the minor in the spring of their sophomore year who have not yet taken one of the listed statistics/research methods courses ideally will take one in the fall of their junior year and the second in the spring of their junior year.

Core Course in Survey Methodology (3 *credits)*

The core course of the minor is SURV400 Fundamentals of Survey Design. This is an existing course that is offered each spring and is taught by a regular member of the JPSM teaching faculty. Students in the minor will be given enrollment priority. SURV400 is designed to provide students with an overview of the entire survey process, from the development of survey

objectives to the collection and analysis of the survey data. The textbook for the course was authored by leading scholars in the field, all of whom have taught in the JPSM program. SURV400 will be a prerequisite for the two additional 3 credit SURV courses required for the minor and should be taken in the spring of the junior year.

Additional Survey Methodology Courses (6 *credits)*

Students completing the minor also will be required to take SURV430 Questionnaire Design, a new course developed to serve students in the minor as well as graduate students in other departments on campus. SURV430 will be offered as a stand-alone course each year in the fall semester and students in the minor will be given enrollment priority. We do not currently have the staff resources to offer a separate section of this new class in other semesters. In order to provide students completing the minor with needed scheduling flexibility, SURV430 will be offered jointly with SURV630, an existing course taken by students pursuing the JPSM Masters in Survey Methodology, in the spring and/or summer. Qualified students enrolled in the jointly offered SURV430/SURV630 course may choose, with permission, to register for SURV630. Successful completion of SURV630 will satisfy the minor requirement. Taking SURV630 could be advantageous for students who later apply for the JPSM Masters degree program, as it is a required course for that program.

Students taking the minor also will be required to take one additional 600-leve1 SURV course. The course options and the semesters when these courses are regularly offered are as follows:

SURV623 Data Collection - Fall, Summer
SURV632 Social and Cognitive Foundations of Survey Measurement - Fall
SURV625 Applied Sampling - Spring, Summer

These are existing courses taken primarily by students in the JPSM Masters program. Although these are graduate level courses, we believe they should be accessible to advanced undergraduates with suitable preparation.

Seminar (1 *credit)*

The final requirement for the minor is that students participate in SURV672 Introduction to the Federal Statistical System and to the Survey Research Profession, another course taken by students in the JPSM Masters program. This is a one-credit pass-fail seminar, taught each fall, in which students consider issues related to the ethics of survey data collection and serving the users of survey data. During the semester, students meet with the heads of a number of the federal statistical agencies, giving them the opportunity to learn about those agencies' work. This seminar is an important part of the professionalization of our students and thus of preparing them for careers that make use of their survey methodology background.

Completion Requirements

In order to complete the minor, students must:

- Complete all 16-18 required credits;
- Achieve a minimum grade of "C-" or better in all minor courses;
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the minor requirements;
- Apply no more than two courses from the minor to satisfying the requirements of the student's major;
- Complete no more than two courses for the minor at an institution other than the University of Maryland, College Park.

The minor is designed to be completed during the junior and senior years, but students could apply for admission to the minor as early as the fall of their sophomore year. Courses completed prior to applying for the minor will be accepted to satisfy the minor requirements.

Eligibility and Application Process

Admission to the minor will be limited to no more than 25 students per year, selected through a competitive application process. This limitation on potential enrollments is necessary because of the small size of the JPSM faculty. Successful applicants will have completed at least 30 semester credits and have demonstrated a high level of academic achievement with a minimal GPA requirement of a 3.2. Students who apply to the program are expected to be able to work independently. Students seeking admission to the minor will be asked to complete an application form made available on the JPSM website, submit a letter of support for their application from a faculty member or advisor, submit a half page statement why this minor interests you and provide a copy of their transcript.

The faculty committee responsible for oversight of the minor will evaluate the applications submitted. In selecting students to the program the committee will emphasize academic achievement including, in particular, evidence of successful completion of courses in quantitative subjects.

Advising

Interested students should contact JPSM at jpsm-contact@umd.edu. The application form will be posted to the JPSM website at http://jointprogram.umd.edu/ and applications for admission will be reviewed each semester. Once admitted to the program, students will work with the program director or an assigned faculty advisor to plan the courses to be taken to complete the minor. Students will be expected to be in touch with their faculty advisor(s) prior to the start of each semester to ensure that they are continuing on track to complete the minor requirements.

Sustainability Studies

Co-sponsored by the College of Agriculture and Natural Resources and the School of Public Policy
http://publicpolicy.umd.edu/sust
susminor@umd.edu
1118C Taliaferro

The study of sustainability examines each generation's commitment to protect and preserve the quality of the natural environment for the benefit of succeeding generations. The stability of natural systems and the environment, economic progress, and promoting social justice are all important sustainability goals. Promoting these goals involves choices among competing ends.

The Sustainability Studies Minor at the University of Maryland provides students the opportunity to learn how human relationships, natural resources, and diverse environments can be understood and used to address creatively and positively the global challenges that will affect future human populations and cultures. It will complement any major on campus and provide both intellectual breadth and depth in a challenging area of inquiry that is gaining a high level of interest in businesses, government agencies, and non-governmental organizations. This minor will provide students with the critical thinking and problem-solving skills necessary for them as citizens, employees, or graduate students.

Requirements: 15 approved credits, at least 9 of which are 300- or 400-level. All courses taken for a minor must be completed with a minimum grade of "C-". A minimum C (2.00) cumulative grade point average across all courses used to satisfy the minor is also required. Notes: No more than 6 credits may overlap between your major and Sustainability Studies, unless otherwise approved by your major. Additionally, courses completed in one minor may not be used to satisfy the requirements in another minor. Students must declare the minor a full academic year before their intended graduation.

- **3 credits - AGNR/PUAF301 - Introduction to Sustainability (required).** This course will introduce you to the normative concepts and new thinking surrounding sustainability. We will use readings, lectures, writing exercises, and small group exercises that address how environmental responsibility, economic health, social equity, and cultural vitality are defined and considered in the sustainability context. The roles of resilience and adaptive management will be examined as key pragmatic dimensions of sustainability and as challenging concepts shaping our environmental ethics today. Guest speakers from the Washington region with research and policy expertise will discuss current policy issues.
- **9 credits – One course from each of three groups of courses** linked to the three pillars of sustainability: Science and Technology, Policy and Institutions, and Social and Human Dimensions (see web site for a list of approved courses).
- **3 credits – An additional course from one of these categories or an approved, credit-bearing experiential learning option for which a grade is earned**. These experiences include internships, study abroad trips, and research projects. The experiential learning option must be linked to sustainability and approved in advance.

To declare this minor or for more information, please e-mail susminor@umd.edu

Technology Entrepreneurship

Minor in Technology Entrepreneurship: 15 credits.

A firm grasp of the entrepreneurial process and mind-set benefits every person engaged in developing technology. The goal of the minor in Technology Entrepreneurship is to infuse technology-creating students with that knowledge and its accompanying skills. Armed with an entrepreneurial mind-set, technology creators drive economic growth by launching successful ventures and bringing life-changing products and services to market.

The minor in Technology Entrepreneurship prepares students for launching successful technology ventures and bringing life-changing products and services to market. The minor develops the entrepreneurial mind-set and functional skillsets of students to improve their ability to create, launch, and manage technology ventures. Students earn the minor by completing coursework which focuses on entrepreneurial opportunity analysis, marketing high-technology products, strategies for managing innovation, and international entrepreneurship and innovation.

For details and contact information, visit http://www.mtech.umd.edu/educate/minor/

U.S. Latina/o Studies

Department of American Studies
3322 Tawes, 301-405-1354
http://amst.umd.edu/uslt/

The minor, which requires a total of 15 credits, is intended for students who wish to develop a specialization in U.S. Latina/o Studies alongside their degree pursuits. It is advantageous for students engaged in work with U.S. Latina/o communities in a variety of professions and academic fields including American studies, history, literature, education, non-profits, urban studies and planning, health care, social services, business, government, and public policy, among others.

Requirements (15 credits)

A. Two 1xx or 2xx-Level Foundation Courses (6 credits) - All students are required to take the two foundational courses:

USLT201 - U.S. Latina/o Studies I: An Historical Overview to 1960s

USLT202 - US. Latina/o Studies II: A Contemporary Overview, 1960s-Present.

B. One 3xx or 4xx-Level Course (3 credits)

All students are required to take the 3xx or 4xx-level course:

USLT488B - Senior Seminar in U.S. Latina/o Studies

C. Two 3xx or 4xx-Level Elective Courses (6 credits)

In addition to the three required courses, students will select two 3xx or 4xx-level elective courses in consultation with the USLT advisor. The elective courses will come from two of the following categories: Humanities, Social Sciences, Languages, and Education.

For these electives, students can choose USLT498 - Special Topics in U.S. Latina/o Studies and from a list of pre-approved courses offered through other departments or programs. Elective courses will explore the historical, cultural, political, economic, and sociological dimensions of U.S. Latina/o experiences.

Additional courses that include comparative U.S. Latino content, such as in AMST, USLT, ANTH, ENGL, HIST, SPAN, WMST, EDCI, LASC, SOCY, GEOG, or GVPT would be eligible for inclusion in the minor with the approval of the USLT advisor and Director of U.S. Latina/o Studies.

No course grade below the grade of "C-" may count toward the minor. An overall GPA of 2.0 in the minor is required for graduation.

To make an appointment to explore or declare a minor, go to www.arhu.umd.edu/undergraduate/academics/minors

Additionally, send an email to USLT@umd.edu or USLT Director Dr. Nancy Mirabal at nmirabal@umd.edu.

Chapter 9. Certificates

Upper Division Certificates

- African American Studies Certificate
- Asian American Studies Certificate
- Computational Science Certificate
- East Asian Studies Certificate
- International Agriculture and Natural Resources Certificate
- Latin American Studies Certificate
- Leadership Studies Certificate
- Lesbian, Gay, Bisexual and Transgender Studies Certificate
- Science and Technology Certificate
- Women's Studies Certificate

Lower Division Certificate

- Applied Agriculture (offered through the Institute of Applied Agriculture)

African American Studies Certificate

1119 Taliaferro Hall, 301-405-1158
www.bsos.umd.edu/aasd
vskeeter@umd.edu

The Certificate in African American Studies offers undergraduate students an excellent opportunity to develop a specialization in African-American issues while pursuing a major in another field. Certificate students learn about the social, economic, political and cultural history of the African-American people through a concentration of courses they plan with the AASD Academic Advisor. Courses taken toward the certificate also may be used to satisfy General Education requirements and electives.

Earning a Certificate in African American Studies gives students a competitive advantage in the job market by adding greater focus to their undergraduate experience.

Requirements for the Certificate

- 9 hours of AASP General Education courses: AASP100, AASP101, and AASP200 or AASP202.
- 9 hours of upper division electives in AASP (300-level or above); courses in other departments must be pre-approved.
- 3 credit seminar: AASP400 or AASP402.
- Students must earn a "C-" or above in each course applied toward the certificate.
- Students must have a minimum 2.0 cumulative grade point average across all courses used to satisfy the undergraduate certificate requirements.

- No more than 9 credit hours applied towards a major may be counted for the certificate.
- No more than 9 credit hours may be taken at institutions other than UMD.

For more information, or to apply, please call the African American Studies Department at 301-405-1158. The AASD office is located in 1119 Taliaferro Hall.

Asian American Studies Certificate

Office of Undergraduate Studies
2117 Susquehanna Hall, 301-405-0996
www.aast.umd.edu
aast@umd.edu

Note: The Certificate in Asian American Studies is suspended. Information on the Certificate is for reference only.

The Certificate in Asian American Studies involves students in critical study of the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes for diversity, ethnicity, race, gender and migration in the Americas.

Requirements for Certificate
The Certificate in Asian American Studies requires at least 21 credits: 6 credits in core courses (AAST200 and AAST201); 12 credits in elective courses (from among AAST offerings or, with program approval, from among courses offered outside AAST); and a capstone course of 3 credits (AAST 378 or AAST388). Students must earn a grade of C- or better in any course that counts toward the Certificate in Asian American Studies. Beginning with students matriculating in Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.00) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements.

Note: The Certificate in Asian American Studies was suspended beginning fall 2009. The Asian American Studies Program currently offers a 15-credit academic minor; see Chapter 6 for details on the Asian American Studies Minor.

Computational Science Certificate

College of Computer, Mathematical, & Natural Sciences
3103 Mathematics Building, 301-405-0924
www.amsc.umd.edu
amsc@amsc.umd.edu

For program requirements contact Applied Mathematics & Statistics, and Scientific Computation department.

East Asian Studies Certificate

College of Arts and Humanities
4224 Jimenez Hall, 301-405-3745
http://www.ceas.umd.edu/Certificate/index.html
mmmason@umd.edu

The Undergraduate Certificate in East Asian Studies is a 24-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of "C-" or better in each course, and recommendation by the Coordinator of the Certificate Program, a certificate will be awarded. Beginning with Fall 2012, to be awarded a baccalaureate degree, students must have a minimum C (2.0) cumulative grade point average across all courses used to satisfy undergraduate certificate requirements. A notation of the award of the certificate will be included on the student's transcript. The student must have a bachelor's degree awarded by Maryland (must be College Park campus) previous to or simultaneously with an award of the certificate.

Core Values of the Program:

Vision: See the U.S. and East Asia as parts of one globalized world with cultural varieties.

Knowledge: Acquire language skills, spatial and chronological thinking skills, and creative prowess through interdisciplinary study.

Integrity: Adhere to the University's Code of Academic Integrity and professional ethics.

The Certificate will equip students to develop successful careers through teaching excellence and study abroad programs.

Certificate Requirements

The student is required to take:

1. HIST284 East Asian Civilization I
2. HIST285 East Asian Civilization II
3. Six semester hours of introduction to one of the following East Asian languages (Chinese, Japanese, or Korean):

CHIN101 Elementary Chinese I
JAPN101 Elementary Japanese I

KORA101 Elementary Korean I
KORA102 Elementary Korean II
KORA211 Introductory Reading for Speakers of Korean I
KORA212 Introductory Reading for Speakers of Korean II

Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the 24-credit requirement for the certificate.

Electives: Students must complete at least 12 hours of electives selected from four regular approved courses on East Asia in such disciplines as:

1. art history
2. business
3. ethnomusicology
4. government and politics
5. history
6. language, linguistics, and literature
7. music
8. plant science and landscape architecture
9. sociology and
10. women's studies.

An overall GPA of 2.0 in the certificate is required for graduation.

Nine of the 12 hours of electives must be upper division (3xx-4xx level courses). A maximum of three credit hours of special topics courses on East Asia will be allowed with the approval of the certificate coordinator. No more than nine credits from any one department or from the student's major may be applied toward the certificate. In addition, no more than nine credits of the courses applied toward the certificate may be transferred from other institutions. Students are asked to work with the coordinator in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended). Interested students should contact the Coordinator of the Certificate Program, Dr. Michele M. Mason, Department of East Asian Languages and Cultures, 4224 Jimenez Hall, mmmason@umd.edu (website at www.ceas.umd.edu).

International Agriculture and Natural Resources Certificate

College of Agriculture and Natural Resources
0110 Symons Hall, 301-405-2078
www.agnr.umd.edu
tgallman@umd.edu

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction; international aspects of the environment, agricultural production, development and sustainability,

nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

Requirements for Certificate

The certificate requires 19-21 credits that may include courses taken toward other degree and general education requirements. Upon successful completion of the courses, with a grade of "C-" or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree.

Foreign Language

6-8 credits in a foreign language

International Courses

At least 9 credits from the following list of courses, at least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources:

ENST100 International Crop Production

ENST440 Crops, Soils, and Civilization

AREC365 World Hunger, Population, and Food Supplies

AREC433 Food and Agricultural Policy

BMGT392 Introduction to International Business Management

BMGT390 Competing on Quality in a Global Economy

BSCI365 International Pesticide Problems and Solutions

GEOG434 Agriculture and Rural Development

NFSC425 International Nutrition

AREC445 Agricultural Development, Population Growth, and the Environment

ECON440 International Economics

GVPT306 Global Ecopolitics

GEOG422 Population Geography

Travel Study or Travel Abroad

Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion.

Travel Study Seminar

1 credit Travel Study Seminar. Prerequisite: completion of the travel study requirement.

This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

Latin American Studies Certificate

College of Arts and Humanities
4112 H.J. Patterson Hall, 301-405-9626
www.lasc.umd.edu
lasc@umd.edu

The interdisciplinary certificate program in Latin American Studies is open to University of Maryland, College Park, undergraduates in any major who are interested in Latin America and the Caribbean. The undergraduate certificate in Latin American Studies will be awarded to students who have completed 21 credits with a cumulative GPA of 2.0 or better in the following areas:

Requirements for the Certificate

A. Core Curriculum for All Certificate Students (12 credits)

LASC/SPAN/PORT234	Issues in Latin American Studies I
LASC/SPAN/PORT235	Issues in Latin American Studies II
LASC/HIST250 or LASC/HIST251	Latin American History I or II
LASC/SPAN/PORT/ANTH458	Senior Capstone Course in Latin American Studies

B. Additional Courses in Latin American Studies (9 credits)

Nine credits of additional courses must be chosen from an approved list and from at least two different departments. At least six credits must be at the 3xx- or 4xx-level. See Latin American Studies advisor for details.

C. Foreign Language Competency

All certificate students must demonstrate their competence in one of the languages of Latin America and the Caribbean, including Spanish or Portuguese. Other languages may be used to fulfill this goal with the permission of the LASC undergraduate advisor. Competency may be proven with a grade of "C+" or better in an intermediate-level course or higher. Native speakers of Spanish or Portuguese or students with extensive experience in these languages should consult with the Latin American Studies advisor.

An overall GPA of 2.0 in the certificate is required for graduation.

Interested students should contact our Director and Program Coordinator by email or phone (lasc@umd.edu, 301-405-9626). Please also visit our web page at www.lasc.umd.edu.

Leadership Studies Certificate

Counseling, Higher Education and Special Education (CHSE)

http://umddepartments.orgsync.com/org/leadershipstudies/
3214 Benjamin Building, 301-405-8627
leadershipstudies@umd.edu

Certificate Completion Requirements

The CHSE Certificate in Leadership Studies consists of **21 credit hours**. No more than six credits can also be applied to a student's major, and no more than six credits may be taken at an institution other than the University of Maryland College Park. No course with an earned grade below "C-" may count towards the Certificate.

Requirements for the Certificate: (21 total credits)

- HESI217 - Introduction to Leadership (3 credits)
- HESI315 - Leadership in Groups and Organizations (3 credits)
- HESI318 - Applied Contextual Leadership OR HESI418 - Special Topics in Leadership (3 credits)
- HESI417 - Advanced Leadership Seminar (3 credits)
- HESI320 – Social Action Seminar (2 credits)
- HESI321 – Advanced Social Action Seminar (1 credit)
- TWO elective courses, from our pre-approved elective list (total 6 credits)

Lesbian, Gay, Bisexual and Transgender Studies Certificate

College of Arts and Humanities

2101 Woods Hall, 301-405-6877
www.lgbts.umd.edu

The Department of Women's Studies offers an interdisciplinary undergraduate certificate and a minor in Lesbian, Gay, Bisexual and Transgender Studies (LGBT). These are designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive. Students study LGBT families and communities, cultures and subcultures; histories, institutions, languages and literatures; economic and political lives; and the complex relations of sexual minorities to the culture and experience of the gender conformant and (hetero) sexual majority. LGBT Studies is an interdisciplinary and multidisciplinary field, and promotes the application of new theories and methodologies (e.g., queer, feminist, critical race, and multicultural theories) to established disciplines, and it advances the generation of new knowledge within traditional fields of scholarship. Through study of sexual minorities, students gain an understanding of and respect for other differences in human lives such as age, ability, class, ethnicity, gender, race, and religion. In consultation with the Department of Women's Studies Academic Advisor, LGBT minors and certificate candidates design a program that complements their major field of study.

Certificate Requirements:

21 credits: 15 credits are in required courses, while 6 credits are earned in two elective courses.

A. Required core curriculum for the Certificate in LGBT Studies (15 credits)

1. LGBT200 - Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

2. One 1xx or 2xx-level course focused on literature, art, or culture by or about LGBT people, either LGBT265 (X-listed as ENGL265) or LGBT291 (X-listed as CMLT291) ;

3. One of the following 3xx or 4xx-level courses focused on the personal, social, political, and historical aspects of LGBT people: LGBT350, LGBT407 (X-listed as PHIL407), or LGBT494 (X-listed as WMST494);

4. One of the following 3xx or 4xx-level courses focused on literature, art, or culture by or about LGBT people: LGBT359 (X-listed as ENGL359), LGBT459 (X-listed as ENGL459), LGBT465 (X-listed as ENGL465); or LGBT327

5. One of the following:

a. LGBT488
Seminar in LGBT Studies

b. LGBT386
Supervised Internship - LGBT Community Organizations

B. Elective courses for the Certificate in LGBT Studies (6 credits)

Students choose 6 hours of elective credits in consultation with the Department of Women's Studies Academic Advisor. At least 3 hours of elective credits must be from 3xx or 4xx-level courses. Students are encouraged to choose electives to complement their knowledge of LGBT people and issues by exploring disciplines that contrast with the major field of study. Students may select elective courses from the list of core courses above that have not been used to fulfill requirements for categories 2-5, or from a list of approved courses maintained by the program. The list is updated regularly and available at www.lgbts.umd.edu/minor.html. A student may also petition to have any other course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- Appropriate substitutions for courses listed in categories 2 through 4 above may be made with approval from the Department of Women's Studies Director of Undergraduate Studies.
- No course earned with a grade below "C-" will count toward the certificate in LGBT Studies.
- An overall GPA of 2.0 in the certificate is required for graduation.
- Students may use a maximum of nine credits (or three courses) to satisfy the requirements of both their major and the certificate in LGBT Studies.
- No more than nine of the required credits may be taken at an institution other than the University of Maryland, College Park.
- Students must declare the certificate in LGBT Studies to the Department of Women's Studies one year prior to their intended graduation to assure appropriate advising and record-keeping.

Science, Technology and Society Certificate

1125 Cumberland Hall, 301-405-7219
http://www.scholars.umd.edu/programs/sts/about
Director, David Tomblin, dtomblin@umd.edu

The undergraduate University Certificate program in Science, Technology, and Society (STS) enables students to learn about the dynamic, interactive and creative relationships among science, technology, and society. This 21-credit program helps structure a student's general education and elective requirements into a unifying theme. The end product of the program is a research project of the student's own choosing, which is developed under faculty mentorship. The STS University Certificate is especially helpful to students who are seeking jobs that require understanding policy decisions as they relate to scientific and engineering endeavors, those students hoping to seek a graduate degree that integrates science, technology, and policy, or students simply interested in developing a greater understanding of social issues related to science and technology.

STS is an interdisciplinary field that has been taught for more than 30 years at universities in the United States and Europe, notably in those with strong engineering and public policy programs. In recent years, STS University Certificate students have chosen to write their capstone term papers about timely topics, including the interactions among science, technology and society related to nanotechnology, fuel cell applications, physics research funding, climate change modeling, religious principles as a basis for climate action, integration of SONAR into underwater vehicles, nuclear power in developing countries, and interpersonal impacts of social networking.

Courses:

The STS program requires 9 credits of Lower Level (100-200) and 9 credits of Upper Level courses (300-400) and the STS Capstone (ENES 440, 3 credits). Students must obtain prior approval of the director before counting courses toward their individualized STS curriculum. Many of these credits may overlap with major and minor requirements. For guidance, see the website for a list of approved courses, and note that students may ask the director to approve a course not listed on the website.

Lower Level (100- and 200-level) Courses (9 credits):

Three courses that relate science to society, technology to society, or science to technology; one of the courses should be CPSS 225 (STS sophomore survey course)

Upper Level (300- and 400-level) Courses (12 credits):

These courses have an interdisciplinary orientation that demonstrates inter-relationships between science and society, between technology and society, or between science and technology. Students choose three courses and the fourth course is ENES440, the STS University Certificate capstone.

Joining the Program and Program Requirements:

Students interested in STS should contact the director to obtain advice and approval prior to enrolling in courses that fulfill the program. Students record their progress with the STS program office as they complete requirements, participate in a semi-annual advising meeting, and write a brief evaluation upon completing the program. Students must earn a minimum grade of "C-" in each course they wish to credit toward the STS University Certificate. A student's individual course of study may not exceed these maximums: 9 credits of courses applied to the student's major; 3 credits of Special or Selected Topics courses; 9 credits of courses taken outside UMCP; and 6 credits of courses with the AREC, ECON and GVPT prefixes. Once all requirements are met and the director affirms that the student has completed the program, the Registrar includes a notation of this University Certificate on the student's transcript.

Women's Studies Certificate

College of Arts and Humanities
2101 Woods Hall, 301-405-6877
www.wmst.umd.edu
womensstudies@umd.edu

See Women's Studies Department for faculty roster.

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women and gender that is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies Department. For additional information contact the Women's Studies office, 301-405-6827.

Requirements for Certificate

To qualify for a certificate in Women's Studies, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 3xx/4xx level. No more than three credit hours of special topics courses may be counted toward the certificate. No more than nine credits which are applied toward a major may be included in the certificate program. No more than nine credit hours may be taken at institutions other than the University of Maryland. Each student must obtain a grade of "C-" or better in each course that is to be counted toward the certificate. An overall GPA of 2.0 in the certificate is required for graduation. Of the 21 credits, courses must be distributed as follows:

1. **Requirements for the Certificate**

Foundation Courses (9 credit hours)

WMST200 Introduction to Women's Studies: Women and Society, OR

WMST250 Introduction to Women's Studies: Women, Art & Culture

WMST400 Theories of Feminism

WMST488 Senior Seminar

2. Distributive Courses

Area I: Arts and Literature (3 credit hours)

WMST241 Women Writers of French Expression in Translation (X-listed as FREN241)

WMST250 Introduction to Women's Studies: Women, Art, and Culture

WMST255 Introduction to Literature by Women (X-listed as ENGL255)

WMST275 World Literature by Women (X-listed as CMLT 275)

WMST281 Women in German Literature and Society (X-listed as GERM281)

WMST348 Literary Works by Women (x-listed as ENGL348)

WMST408 Special Topics in Literature by Women before 1800 (X-listed as ENGL 408)

WMST444 Feminist Critical Theory (X-listed as ENGL 444)

WMST448 Special Topics in Literature by Women of Color* (X-listed as ENGL448)

WMST458 Special Topics in Literature by Women after 1800 (X-listed as ENGL458)

WMST466 Feminist Perspective on Women in Art (X-listed as ARTH466)

WMST468 Feminist Cultural Studies

WMST481 Femmes Fatales and the Representation of Violence in Literature(X-listed as FREN481)

WMST496 African -American Women Filmmakers* (X-listed as THET 496)

FREN482 Gender and Ethnicity in Modern French Literature

Area II: Historical Perspectives (3 credit hours)

WMST210 Women in America to 1880(X-listed as HIST 210)

WMST211 Women in America Since 1880 (X-listed as HIST 211)

WMST212 Women in Western Europe, 1750-present (X-listed as HIST212)

WMST320 Women in Classical Antiquity (X-listed as CLAS 320)

WMST453 Victorian Women in England, France, and the United States (X-listed as HIST 493)

WMST454 Women in Africa* (X-listed as HIST 494)

WMST455 Women in Medieval Culture and Society (X-listed as HIST495)

WMST456 Women in the Middle East*

WMST457 Changing Perceptions of Gender in the US: 1880-1935 (X-listed as HIST 433)

AASP313 Black Women in United States History*

AMST418J Women and Family in American Life

Area III: Social and Natural Sciences (3 credit hours)

WMST200 Introduction to Women's Studies: Women and Society

WMST313 Women and Science (X-listed as BSCI 313)

WMST324 Communication and Gender (x-listed as COMM 324)

WMST325 Sociology of Gender (X-listed as SOCY 325)

WMST326 Biology of Reproduction (X-listed as BSCI 342)

WMST336 Psychology of Women (X-listed as PSYC 366)

WMST360 Caribbean Women*

WMST410 Women in the African Diaspora*

WMST420 Asian-American Women*

WMST425 Gender Roles and Social Institutions

WMST430 Gender Issues in Families (X-listed as FMST 430)

WMST436 Legal Status of Women (X-listed as GVPT 436)

WMST452 Women and the Media (X-listed as JOUR 452)

WMST471 Women's Health (X-listed as HLTH 471)

WMST493 Jewish Women in International Perspective*

WMST494 Lesbian Communities and Difference*

AASP498F Special Topics in Black Culture: Women and Work*

CCJS498 Special Topics in Criminology and Criminal Justice: Women and Crime

SOCY498W Special Topics in Sociology: Women in the Military

*Fulfills Women's Studies Cultural Diversity Requirement

3. Courses in Cultural Diversity (3 credit hours)

Students will select one course for a minimum of 3 credit hours. Approved courses are noted with an asterisk in section 2, above. Courses in this category may overlap with other requirements.

4. Remaining Courses
The remaining courses may be chosen from any of the three distributive areas or from among any of the WMST courses including WMST 298 or 498: Special Topics and WMST 499: Independent Study.

Advising
To obtain more information, contact the Undergraduate Advisor, 301-405-6827, or write to the Women's Studies Department, 2101 Woods Hall, University of Maryland, College Park, MD 20742.
Course Code: WMST

Lower Division Certificates

Applied Agriculture

Institute of Applied Agriculture (60-credit Certificate in Applied Agriculture)
College of Agriculture and Natural Resources
Glori Hyman, Director
2123 Jull Hall, 301-405-4685
E-mail:iaa-request@umd.edu
www.iaa.umd.edu

Through the Institute of Applied Agriculture (IAA) students earn a UMD Certificate in Applied Agriculture. Students may select one of the following concentrations: Agricultural Business Management, Agricultural Leadership and Communication, General Turfgrass Management, Golf Course Management, Landscape Management, Ornamental Horticulture, Sports Turf Management, and Sustainable Agriculture. The IAA provides students with the entrepreneurial and technical skills needed to manage and lead successful agricultural enterprises.

The IAA has a separate admission policy which can be found on its website. Upon completion of the program, most students accept job offers. However, students are welcome to transfer to the University of Maryland, College Park; University of Maryland University College; or other schools.

Agriculture Forward at the University of Maryland (Ag Forward) is an accelerated program for first-time university students who are interested in earning dual credentials from the University of Maryland, College Park. Students begin their studies in the Institute of Applied Agriculture (IAA). After successfully completing 30 credits at the IAA with a GPA of at least

3.0., students are eligible to transfer into a bachelor's degree program within the College of Agriculture and Natural Resources. Students continue to earn their Certificate in Applied Agriculture while working on their bachelor's degree.

University Policies

University of Maryland College Park and University of Maryland System policies and procedures that may impinge on an undergraduate student's studies can be found on the following sites:

- CONSOLIDATED USM AND UMD POLICIES AND PROCEDURES: http://www.president.umd.edu/administration/policies
- UNIVERSITY SYSTEM OF MARYLAND ACADEMIC AFFAIRS: http://www.usmd.edu/regents/bylaws/SectionIII/
- STATEWIDE EDUCATIONAL POLICIES: http://www.dsd.state.md.us/comar/subtitle_chapters/13B_Chapters.aspx

Appendix A: UNIVERSITY OF MARYLAND NON-DISCRIMINATION POLICY AND PROCEDURES VI-1.00B

http://president.umd.edu/administration/policies/section-vi-general-administration/vi-100b.

Appendix B: UNIVERSITY OF MARYLAND SEXUAL MISCONDUCT POLICY AND PROCEDURES VI-1.60(A)

http://president.umd.edu/administration/policies/section-vi-general-administration/vi-160a-0

Appendix C: UNIVERSITY OF MARYLAND, COLLEGE PARK CODE OF STUDENT CONDUCT V-1.00(B)

http://president.umd.edu/administration/policies/section-v-student-affairs/v-100b

Appendix D: UNIVERSITY OF MARYLAND, COLLEGE PARK POLICY AND PROCEDURES ON THE DISCLOSURE OF STUDENT EDUCATION RECORDS III-6.30(A)

The policy below is current as of this publication. For more information and possible updates go to:
http://president.umd.edu/administration/policies/section-iii-academic-affairs/iii-630a

III-6.30(A) UNIVERSITY OF MARYLAND POLICY AND PROCEDURES ON THE DISCLOSURE OF STUDENT EDUCATION RECORDS

APPROVED BY THE PRESIDENT 1 AUGUST 1991; updated April 15, 1996, June 2, 1997, and October 1, 2002 by President's Legal Office.

I. POLICY

It is the policy of UMCP to comply with the requirements of the Federal Family Educational Rights and Privacy Act, known as the Buckley Amendment, concerning the disclosure of student records. Following is an outline of the policy, and an explanation of the procedures by which students may obtain access to education records. A copy of this policy shall be furnished annually to each student with registration materials.

II. DEFINITIONS

"**Attendance**" includes but is not limited to attendance in person or by correspondence; and the period during which a person is working under a work-study program.

"**Directory Information**" means information which would generally not be considered harmful or an invasion of privacy if disclosed. It includes, but is not limited to, a student's name, address, telephone listing, e-mail address, date and place of birth, major field of study, full-time/part-time status, participation in officially recognized activities and sports, weight and height of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended.

"**Disclosure**" means to permit access to or the release, transfer, or other communication of education records to any party by any means, including oral, written, or electronic means.

"**Education Records**" means those records maintained by UMCP which contain information directly related to a student except:

1. Records made by instructors, professors, and administrators for their own use, and not shown to others.
2. Records maintained by UMCP Police solely for law enforcement purposes and kept separately from the education records described above.
3. Records of employment which relate exclusively to the individual in that individual's capacity as an employee, and are not available for use for any other purpose. (**NOTE**: If a currently enrolled student is employed as a result of his or her status as a student, records relating to that employment are education records.)
4. Records on a student who is eighteen years of age or older made by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional made or used only for treatment purposes and available only to persons providing treatment. (**NOTE**: Treatment for the purposes of this definition does not include remedial educational activities.)
5. Alumni records which contain only information relating to a person's activities after that person is no longer a student at UMCP and do not relate to that person as a student.

"**Parent**" means a parent of a student, and includes a natural or adoptive parent, a guardian, or, in the absence of natural or adoptive parents, an individual acting as a parent.

"**Party**" means an individual, agency, institution, or organization.

"**Personally identifiable information**" means a student's name, a name of a student's parent or family members, an address of a student or a student's family, a personal identifier, such as a social security number or student number, a list of personal characteristics or any information that would make a student's identity traceable.

"**Record**" means any information recorded in any way including but not limited to handwriting, print, tape, film, microfilm, and microfiche.

"**Student**" means any individual who is or has been in attendance at UMCP and on whom education records are maintained.

III. RIGHT OF ACCESS

Each student in attendance at UMCP has a right to inspect and review his or her education records.

A. Procedure

1. Form of Request

Requests for access to education records must be made in writing, signed by the student, and must include the student's social security number.

2. Place of Request

Requests are made to:

Registrar's Office
Clarence Mitchell Building
College Park, Maryland 20742-5231

3. Response by UMCP

UMCP will comply with a request for access within a reasonable time, not to exceed 45 days. Whenever possible, arrangements shall be made for the student to read his or her records in the presence of a staff member.

4. Reproduction of Records

A student may ordinarily obtain copies of education records by paying the cost of reproduction. The fee for photocopies is $.25 per page. There is no charge for staff time to search for or collect education records. Only copies of a student's current UMCP transcript will be provided. Official University of Maryland transcripts with the seal of the University will be provided at a higher cost.

B. Types and Locations of Education Records Maintained at UMCP

(NOTE: All requests must be routed through the Registrar's Office.)

1. Admissions
   Applications and transcripts from institutions previously attended.

   a. Undergraduate:

      Director of Admissions
      Mitchell Building

   b. Graduate:

      Director of Graduate Records
      Lee Building

2. Registrations
   All on-going academic and biographical records, undergraduate and graduate:

   Director of Registrations
   Mitchell Building

3. Departments
   Departmental Offices
   Chair of the Department

4. Deans

   Miscellaneous records
   Dean's office of each school

5. Resident Life

   Student's housing records
   Director of Resident Life

6. Advisors
   Letters of evaluation, personal information sheet, transcript, test scores (with student permission).

Pre-law advisor: Hornbake Library
Pre-dental advisor: Hornbake Library
Pre-medical advisor: Hornbake Library

7. Judicial Affairs

Student's judicial and disciplinary records

Director of Judicial Programs
Mitchell Building

8. Counseling Center
Biographical data, summaries of conversations with students, test results

Director
Shoemaker Hall

(**NOTE**: Where records are used only for treatment purposes, they are not education records and are not subject to this policy.)

9. Financial Aid
Financial Aid applications, needs analysis statements, awards made
Undergraduate:

Director of Financial Aid
Lee Building

Graduate:

Deans' Offices

(**NOTE**: There is no student access to parents' confidential statements.)

10. Career Development Center
Recommendations, unofficial copies of academic records

Director
Hornbake Library

11. Office of the Bursar
Student accounts receivable, records of students' financial charges and credits with UMCP

Bursar
Lee Building

C. Waiver of Access to Confidential Recommendations

A student may waive the right of access to confidential recommendations in the following areas:

1. admission to any educational institution;

2. job placement;

3. receipt of honors and awards.

The waiver must be in writing, and UMCP shall not require such waivers as a condition to admission, or the receipt of any service or benefit. If right of access is waived, a student will be notified, upon written request, of the names of all persons making confidential recommendations. Such recommendations shall be used only for the purpose for which they were specifically intended. A waiver may be revoked in writing at any time, and will only apply to subsequent recommendations.

IV. DISCLOSURE OF PERSONALLY IDENTIFIABLE INFORMATION

It is the policy of UMCP to limit disclosure of personally identifiable information without a student's prior written consent, subject to the following limitations and exceptions:

A. Directory Information (defined above)

1. This information may be disclosed and may appear in public documents unless a student files a written notice not to disclose any or all of the information within three weeks of the first day of the semester in which the student begins each year. This notice must be filed annually with the Registrar's Office within the allotted time to avoid automatic disclosure of directory information
2. Students will be given annual notice of the categories of information designated as directory information.

B. Prior Consent Not Required

Prior consent is not required for disclosure of education records to the following parties:

1. School officials of UMCP who are or may be in a position to use the information in furtherance of a legitimate educational objective.

A school official is:

a. A person employed by the University of Maryland System in an administrative, supervisory, academic, research or support staff position.
b. A member of the Board of Regents.
c. A person employed by or under contract to the University to perform a special task, such as an attorney or auditor.

A school official has a legitimate educational interest if the official is:

a. Performing a task that is specified in his or her position description or by a contract agreement.
b. Performing a task related to a student's education.
c. Performing a task related to the discipline of a student.
d. Providing a service or benefit relating to the student's family, such as health care, counseling, job placement, or financial aid.

2. Officials of other schools in which a student seeks or intends to enroll or is enrolled. A student will be provided with a copy of the records which have been transferred upon request and payment of copying fees as described above.

3. Authorized representatives of the Comptroller General of the United States, the Secretary of Education, the Commissioner of the Office of Education, the Director of the National Institute of Education, the Administrator of the Veterans' Administration, the Assistant Secretary of Education, and State educational authorities, but only in connection with the audit or evaluation of federally supported education programs, or in connection with the enforcement of or compliance with federal legal requirements relating to these programs. Subject to controlling federal law, these officials will protect information received so as not to permit personal identification of students to outsiders.

4. Authorized persons and organizations who are given work in connection with a student's application for or receipt of financial aid to the extent necessary.

5. State and local officials to which such information is required to be reported by effective state law adopted prior to November 19, 1974.

6. Organizations conducting education studies for the purpose of developing, validating, or administering predictive tests, administering student programs, and improving instruction. The studies shall be conducted so as not to permit personal identification of students to outsiders, and the information is to be destroyed when no longer needed for these purposes.

7. Accrediting organizations for purposes necessary to carry out their functions.

8. Parents of a student who is dependent for income tax purposes.

9. Appropriate parties in connection with an emergency, where knowledge of the information is necessary to protect the health or safety of the student or other individuals.

10. In response to a court order or subpoena. Unless the issuing entity orders the university against prior notification, the university will make reasonable efforts to notify the student before complying with the court order.

11. To an alleged victim of any crime of violence of the results of any institutional

disciplinary proceedings against the alleged perpetrator of that crime with respect to that crime.

C. Prior Consent Required In All Other Cases

UMCP will not release personally identifiable information in education records, or allow access to those records without prior consent from the student. The consent must be in writing, signed by the student, and dated. The student must specify the records to be disclosed, the identity of the recipient, and the purpose of the disclosure. A copy of the record disclosed will be provided to the student upon request and payment of copy fees described above.

D. Record of Disclosures

1. Maintenance of List

UMCP shall maintain a list of each request and each disclosure of personally identifiable information with each student's education records. The list shall include:

a. the parties who have requested or received the information;
b. the legitimate interest the parties had in requesting or receiving the information.

2. Inspection of List

The list of disclosures may be inspected by:

a. the student;
b. the official custodian of the record; and
c. other UMCP and governmental officials.

3. Exceptions

The following disclosures are not listed:

a. disclosures to the student;
b. disclosures pursuant to written consent;
c. disclosures to instructional or administrative officials of UMCP;
d. disclosures of directory information.

V. CORRECTION OF EDUCATION RECORDS

It is the policy of UMCP to provide students the opportunity to seek corrections to education records which are believed to be inaccurate, misleading, or which violate the right to privacy or other rights.

A. Request to Correct an Education Record

1. A request must be in writing to the Registrar's Office.

2. A request must contain:

a. the specific document(s) being challenged; and
b. the basis for the challenge.

3. UMCP shall decide within a reasonable time whether to amend the document(s). The student shall be notified of the decision in writing, and if the decision is to refuse to amend, the student shall be notified of the right to a hearing.

B. Right to a Hearing

Upon request, a student shall be provided an opportunity for a hearing to challenge the content of education records. A request for a hearing must be made in writing to the Registrar's Office. Within a reasonable time, the student shall be notified in writing of the date, place, and time. The student shall be given reasonable advance notice of the hearing.

C. Conduct of Hearing

1. The hearing shall be conducted by a UMCP official with no direct interest in the outcome.

2. The student shall have a full and fair opportunity to present evidence, and may be represented by individuals of his or her choice, including an attorney. The cost for such representation shall be the responsibility of the student.

D. Decision

1. The student shall be notified in writing within a reasonable amount of time.

2. The decision is to be based solely upon evidence presented at the hearing, and must include a summary of the basis of the decision.

3. In cases where the challenged information is found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, the education records shall be amended accordingly within a reasonable time.

4. In cases where the challenged information is not found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of a student, the student shall be informed in writing of the right to place in the challenged record a statement commenting on the information and explaining any reasons for disagreeing with the decision.

5. The statements described above shall be kept as part of the student's record and disclosed whenever that portion of the record is disclosed.

VI. RIGHT TO FILE A COMPLAINT

Student alleging noncompliance with the Family Educational Rights and Privacy Act may file a complaint with the Department of Education, 600 Independence Avenue, S.W., Washington, D.C. 20202-4605.

Appendix E: POLICY ON SMOKING AT UNIVERSITY OF MARYLAND VI-8.10(A)

http://president.umd.edu/administration/policies/section-vi-general-administration/vi-810a

Appendix F: UNIVERSITY OF MARYLAND, COLLEGE PARK CODE OF ACADEMIC INTEGRITY III-1.00(A)

http://president.umd.edu/administration/policies/section-iii-academic-affairs/iii-100a

Appendix G: STATUTE OF LIMITATIONS FOR THE TERMINATION OF DEGREE PROGRAMS

Committee on Academic Procedures and Standards
Approved December 7, 1989

The following policies apply to all undergraduate degree programs terminated at the University of Maryland at College Park at the beginning of the Spring, 1990 Semester and thereafter.

1. All students enrolled at the University of Maryland, College Park or at a Maryland community college program articulated with the terminated degree program during the semester in which the program is terminated must complete the major requirements of the terminated degree program within five calendar years of the date upon which the program is terminated. If only a few students are enrolled in a terminated program, a shorter time limit may be imposed based on a study of the academic records of all students enrolled in the program. If a shorter time period is imposed, all students enrolled in the program will be notified of its length.

2. Students who, prior to the termination date had been enrolled in the terminated program or a Maryland community college articulated with the terminated program, but who subsequently interrupt their studies at the University of Maryland, College Park or the community college for one or more semesters will be allowed to enter or re-enter the program only if a careful analysis of their records by the appropriate dean indicates they will be able to complete the major requirements of the terminated program within the remaining time period specified.

3. When a program is terminated the University of Maryland, College Park will make a good faith effort to notify those students who had interrupted their studies

in that program. As part of that good faith effort, the University of Maryland at College Park will publish in its re-enrollment forms, catalogues, and schedules of classes a statement advising returning students that programs may have been terminated and that the student needs to check the current status of the program.

4. At the end of the time period specified for completion of major requirements after the termination date of the program, the relevant department or college will evaluate the records of each student enrolled in the program for fulfillment of departmental major requirements and will notify students whether they have completed these requirements. Such notice shall be in writing and sent to the student's last known addresses.

5. When a degree program is terminated, the university will send notification of the time limit for completion of the major requirements to all students enrolled in the program at that time. It will also attempt to send notification to students who interrupted their studies while enrolled in the program in the preceding three years, insofar as such students can reasonably be identified. This notification will be sent to the students' last known addresses on file with the university. Such notifications also will be sent to the Maryland community colleges having programs articulated with the terminated program.

Appendix H: POLICY ON STUDENT CLASSIFICATION FOR ADMISSION AND TUITION PURPOSES VIII-2.70

The policy below is current as of this publication. For more information and possible updates go to: www.usmd.edu/regents/bylaws/SectionVIII/viii270r.pdf

VIII-2.70 POLICY ON STUDENT CLASSIFICATION FOR ADMISSION AND TUITION PURPOSES

(Approved by the Board of Regents August 28, 1990; Amended July 10, 1998; Amended November 27, 2000; Amended April 11, 2003; Amended June 23, 2006; Amended February 15, 2008, Amended October 24, 2014; Amended April 10, 2015)

I. POLICY

A. Purpose

To extend the benefits of its system of higher education while encouraging the economical use of the State's resources,[1] it is the policy of the Board of Regents of the University System of Maryland (USM) to recognize the tuition categories of in-state and out-of-state students for the purpose of admission and assessing tuition at USM institutions.

B. Burden of Proof

The person seeking in-state status shall have the burden of proving by clear and convincing evidence that he or she satisfies the requirements and standards set forth in this

Policy. Assignment of in-state or out-of-state status will be made by the applicable USM institution upon a review of the totality of facts known or presented to it.

C. In-state Status

To qualify for in-state tuition, a student must demonstrate that, for at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in-state tuition status, the student had the continuous intent to:

1. Make Maryland his or her permanent home; and

2. Abandon his or her former home state; and

3. Reside in Maryland indefinitely; and

4. Reside in Maryland primarily for a purpose other than that of attending an educational institution in Maryland.

Satisfying all of the requirements in Section II (and Section III, when applicable) of this policy demonstrates continuous intent and qualifies a student for in-state tuition. Students not entitled to in-state status under this policy shall be assigned out-of-state status for admission and tuition purposes.

D. Presumption

Either of the following circumstances raises a presumption that the student is residing in the State of Maryland primarily for the purpose of attending an educational institution and therefore, does not qualify for in-state status under this policy:

1. A student is attending school or living outside Maryland at the time of application for admission to a USM institution, or

2. A student is Financially Dependent on a person who is not a resident of Maryland.

This presumption may be rebutted. The student bears the burden of rebutting the presumption. See "III. Rebuttal Evidence" below.

II. REQUIREMENTS

Before a request for classification to in-state status will be considered, a student must comply with all of the following requirements for a period of at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in-state tuition status. The student must demonstrate he or she:

A. Owns or possesses, and has continuously occupied, including during weekends, breaks and vacations, living quarters in Maryland. The student must provide evidence of a genuine deed or lease and documentation of rent payments made. In lieu of a deed or lease, a notarized affidavit from a landlord showing the address, name of the student as occupant, term of residence, and history of rent payments made will be considered. As an alternative, a student may demonstrate that he or she shares living quarters in Maryland which are owned or rented and occupied by a parent, legal guardian or spouse.

B. Has substantially all of his or her personal property, such as household effects, furniture and pets in Maryland.

C. Has paid Maryland income tax on all taxable income including all taxable income earned outside the State and has filed a Maryland tax return.

D. Has registered all owned or leased motor vehicles in Maryland.

E. Possesses a valid Maryland driver's license, if licensed.

F. Is registered to vote in Maryland, if registered to vote.

G. Receives no public assistance from a state other than the State of Maryland or from a city, county or municipal agency other than one in Maryland.

H. Has a legal ability under Federal and Maryland law to live permanently without interruption in Maryland.

I. Has rebutted the presumption that he or she is in Maryland primarily to attend an educational institution, if the student's circumstances have raised the presumption.

III. REBUTTAL EVIDENCE

Satisfying the requirements listed in paragraphs 1-8 of Section II, does not rebut the presumption that a student is in Maryland primarily to attend an educational institution. To overcome the presumption, a student must present additional evidence.

To determine a student's intent, the University will evaluate evidence of a student's objectively verifiable conduct. Evidence that does not document a period of at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the student seeks in-state tuition status is generally considered an unfavorable factor under this policy. Evidence of intent must be clear and convincing and will be evaluated not only by the amount presented but also based upon the reliability, authenticity, credibility and relevance of the evidence.

The absence of objective, relevant evidence is generally considered an unfavorable factor. A student's statement of intent to remain in Maryland in the future is generally not considered to be objective evidence under this policy.

Additional evidence that will be considered includes, but is not limited to, the following:

A. Source of financial support:

i. Maryland employment and earnings history through sources beyond those incident to enrollment as a student in an educational institution e.g., beyond support provided by work study, scholarships, grants, stipends, aid, student loans, etc. (Tuition costs will be considered as a student expense only to the extent tuition exceeds the amount of any educational scholarships, grants, student loans, etc.) or

ii. Evidence the student is Financially Dependent upon a person who is a resident of Maryland.

B. Substantial participation as a member of a professional, social, community, civic, political, athletic or religious organization in Maryland, including professionally related school activities that demonstrate a commitment to the student's community or to the State of Maryland.

C. Registration as a Maryland resident with the Selective Service, if male.

D. Evidence showing the student uses his or her Maryland address as his or her sole address of record for all purposes including on health and auto insurance records, bank accounts, tax records, loan and scholarship records, school records, military records, leases, etc.

E. An affidavit from a person unrelated to the student that provides objective, relevant evidence of a student's conduct demonstrating the student's intent to live permanently in Maryland.

IV. NON-RESIDENTS WHO MAY TEMPORARILY QUALIFY FOR IN-STATE STATUS

In addition, persons with the following status shall be accorded the benefits of in-state status for the period in which they hold such status:

A. A full-time or part-time (at least 50 percent time) regular employee of USM or a USM institution.

B. The spouse or Financially Dependent child of a full-time or part-time (at least 50 percent time) regular employee of USM or a USM institution.

C. An active duty member of the Armed Forces of the United States who is stationed in Maryland, resides in Maryland, or is domiciled in Maryland, or the spouse or a Financially Dependent child of such an active duty member. Spouses and children who qualify for exemptions under this provision will retain in-state status for tuition purposes as long as they are

continuously enrolled, regardless of whether the active duty member's station assignment, residence, or domicile remains in Maryland.[2]

D. A veteran of the Armed Forces of the United States who provides documentation that he or she was honorably discharged and currently resides or is domiciled in Maryland. [3]

E. A veteran who lives in Maryland and was discharged" from a period of at least 90 days of service in the active military, navy, or air service less than three years before the date of the veteran's enrollment and is pursuing a course of education with educational assistance under 38 U.S.C. §3001 or 38 U.S.C. §3301. [4]

F. The spouse or child of a veteran, provided that:

(1) the veteran was discharged or released from a period of at least 90 days of service in the active military, navy, or air service less than three years before the date of the spouse or child's enrollment (or in the case of a spouse or child seeking benefits under the Post-9/11 G.I. Bill, the veteran died in the line of duty on or after September 11, 2001 but less than three years before the date of enrollment);

(2) the spouse or child is entitled to assistance under Post-9/11 G.I. Bill, , 38 U.S.C. §3319 and, 38 U.S.C. §3311(B)(9);

(3) the spouse or child currently lives in Maryland; and

(4) the spouse or child is pursuing a course of education with educational assistance under 38 U.S.C. §3001 or 38 U.S.C. §3301.[5]

G. A member of the Maryland National Guard, as defined in the Public Safety Article of the Maryland Annotated Code, who joined or subsequently serves in the Maryland National Guard to: (i) provide a critical military occupational skill; or (ii) be a member of the Air Force Critical Specialty Code as determined by the National Guard.

H. For UMUC, a full-time active member of the Armed Forces of the United States on active duty, or the spouse of a member of the Armed Forces of the United States on active duty.

I. A graduate assistant appointed through a USM institution for the semester/term of the appointment. Except through prior arrangement, this benefit is available only for enrollment at the institution awarding the assistantship.

V. PROCEDURES

A. An initial determination of in-state status will be made at the time of admission. The determination made at that time, and any determination made thereafter, shall prevail for each semester/term until the determination is successfully challenged in a timely manner.

B. A change in status must be requested by submitting a USM institution's "Petition for Change in Classification for Tuition". A student applying for a change to in-state status must furnish all evidence that the student wishes the USM institution to consider at the time the petition is due. The due date is based on the deadline set forth by the USM institution at which the student seeks to enroll. If the applicable USM institution has no such deadline, the due date is the last published date to register for the forthcoming semester/term for which the change in classification is sought.

C. The student shall notify the USM institution in writing within fifteen (15) days of any change in circumstances which may alter in-state status.

D. In the event incomplete, false, or misleading information is presented, the USM institution may, at its discretion, revoke in-state status and take disciplinary action provided for by the institution's policy. Such action may include suspension or expulsion. If in-state status is gained due to false or misleading information, the institution reserves the right to retroactively assess all out-of-state charges for each semester/term affected.

E. Each USM institution shall develop and publish additional procedures to implement this Policy. Procedures shall provide that on request the institution President or designee has the authority to waive any requirement set forth in Section II if it is determined that the application of the requirements creates an unjust result. These procedures shall be filed with the Office of the Chancellor.

VI. DEFINITIONS

A. Financially Dependent: For the purposes of this policy, a financially dependent student is one who is claimed as a dependent for tax purposes.

B. Parent: A parent may be a natural parent, or, if established by a court order recognized under the law of the State of Maryland, an adoptive parent.

C. Guardian: A guardian is a person so appointed by a court order recognized under the law of the State of Maryland.

D. Spouse: A spouse is a partner in a legally contracted marriage.

E. Child: A child is a natural child or a child legally adopted pursuant to a court order recognized under the law of Maryland.

F. Regular Employee: A regular employee is a person employed by USM or a USM institution who is assigned to a State budget line or who is otherwise eligible to enroll in a State retirement system. Examples of categories NOT considered regular employees are graduate students, contingent employees, and independent contractors.

G. Continuous Enrollment:

i. Undergraduate Student - An undergraduate student who is enrolled at a USM institution for consecutive fall and spring semesters, until completion of the student's current degree program or unless on an approved leave of absence or participating in an approved program off-campus.

ii. Graduate and Professional - Continuous enrollment for a graduate or professional student is defined by the institution in accordance with program requirements.

VII. IMPLEMENTATION

This policy as amended by the Board of Regents on April 10, 2015 shall be applied to all student tuition classification decisions EFFECTIVE JULY 1, 2015 AND THEREAFTER.

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[1] Annotated Code of Maryland, Education Article, §12-101.

2 Annotated Code of Maryland, Education Article § 15-106.4.

3 Annotated Code of Maryland, Education Article § 15-106.4.

4 38 U.S.C.A. § 3679(c).

5 38 U.S.C.A. § 3679(c).

Appendix I: UNIVERSITY OF MARYLAND POLICY ON THE CONDUCT OF UNDERGRADUATE COURSES AND STUDENT GRIEVANCE PROCEDURE V-1.00(A)

http://president.umd.edu/administration/policies/section-v-student-affairs/v-100a-0

Appendix J: UNIVERSITY OF MARYLAND PROCEDURES FOR REVIEW OF ALLEGED ARBITRARY AND CAPRICIOUS GRADING--UNDERGRADUATE STUDENTS III-1.20(B)

http://president.umd.edu/administration/policies/section-iii-academic-affairs/iii-120b

Appendix K: POLICY ON PARTICIPATION BY STUDENTS IN CLASS EXERCISES THAT INVOLVE ANIMALS

Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available. If no alternatives are available, the refusal to participate in required activities involving animals may result in a failing grade in the course. Departments including courses where animals are used must actively inform students of such courses, including, but not limited to, notices in the Catalog.

The University of Maryland, College Park campus, affirms the right of the faculty to determine course content and curriculum requirements. The University, however, also encourages faculty to consider offering alternatives to the use of animals in their courses. In each course, the instructor determines whether the use of animals in the classroom exercises will be a course requirement or optional activity. The following departments have courses that may require animals to be used in class activities: Animal and Avian Sciences, Cell Biology and Molecular Genetics, Psychology, Veterinary Medicine, Biology, and courses with the NFSC prefix.

Committee on Academic Procedures and Standards
April 27, 1990

Appendix L: COMPLETION OF INTERRUPTED DEGREE

Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

College Park Senate
October 1995

Appendix M: UNIVERSITY OF MARYLAND POLICY ON THE COLLECTION, USE AND PROTECTION OF ID NUMBERS VI-26.00(A)

The policy below is current as of this publication. For more information and possible updates go to:

http://president.umd.edu/sites/president.umd.edu/files/documents/policies/VI-2600a.pdf

VI-26.00(A) UNIVERSITY OF MARYLAND POLICY ON THE COLLECTION,

USE AND PROTECTION OF ID NUMBERS

(Approved by the President May 31, 2005; Technical Amendment November 7, 2013)

I. Purpose:

The University of Maryland is dedicated to ensuring the privacy and proper handling of confidential information relating to students, faculty, staff and individuals associated with the University. Traditionally, the Social Security Number (SSN) has been used as a common "person" identifier and the key to University "person" databases. The purpose of this policy is to authorize the creation of new methods of unique identification that will replace reliance on the SSN and allow for easy identification of a person for University transactions.

II. Policy

Use of the SSN as an identifier will be discontinued, except where required for employment, IRS reporting, Office of Institutional Research, Planning & Assessment, federal student financial aid processing, state and federal reporting and a limited number of other business transactions.

While the SSN will be collected and retained as authorized by law, it will not be used for routine identification or authentication purposes. Instead, a unique, nine digit university identification number called U ID Number will be assigned to each individual. For computer access, individuals will also have a unique Directory ID. For complete authentication, these identifiers (U ID Number and Directory ID) are accompanied by the use of a PIN or password.

III. Policy Implementation

1. The University of Maryland prohibits the use of a person's SSN as a publicly visible identification number for University-related transactions, unless specifically required by law or business necessity. A listing of currently approved uses is provided in Appendix A. This list is subject to change.
2. The University of Maryland will use SSN as a data element but not as a key for access to databases.

3. Each member of the University community will be assigned a unique identification number that will not be the same as nor derived from the individual's SSN. This number is called the U ID Number.
4. Software systems purchased or developed by the University of Maryland will not display a SSN either in read-only format or on print or other system output, unless authorized by law or business necessity.

5. Name and directory systems, purchased or developed by the University of Maryland, will be keyed for access by an individual's unique U ID Number, not the SSN.

6. When databases need to utilize SSN, they will use secure conversion tables or other technical mechanisms that automatically cross-reference SSN and other information within systems. In exceptional circumstances, it may be necessary to use SSN as an alternate search field. All such cases shall be referred to the data custodian (Registrar's Office for students, UHR for employees) who shall seek approval from the University Data Policy Advisory Committee (DPAC) DPAC has a strict procedure for reviewing and approving requests for the use of SSN in any campus application or database. Justifications must be submitted to the appropriate divisional DPAC representative for committee review and consideration of approval. In addition, any transmission of data containing SSN over any communication network must be transmitted using a secure methodology.

7. Systems or technology developed or purchased by the University of Maryland after the effective date of this policy shall comply with these provisions.

8. For computer access or login purposes, members of the University community will also be assigned a Directory ID. The Directory ID will be used as a standard identifier for all computer resource authentication purposes but individuals may also be allowed to authenticate by using their U ID Number.

9. Campus validation of University of Maryland photo ID cards will be by reference to either the holder's U ID Number or bar code.

Timeframe for Implementation: The University of Maryland recognizes that some of its major systems are currently keyed for access to SSN as an identifier and that the conversion of all systems will take time and resources. The expectation is that there will be a steady and purposeful movement away from dependency on SSN. Appropriate interim measures may be developed until such time as the conversion to U ID Numbers is complete.

"Legacy" Data: The University recognizes that the SSN must be retained and used as a person identifier in older "legacy" data pertaining to ex-students and ex-employees as it is impractical to assign U ID numbers to these individuals.

Protection of ID Data Held in Secondary or Derivative Data Files: Any University office that collects and maintains an individual's social security number in any media must:

1) Ensure that the number is stored in a secure and confidential environment; 2) eliminate using the number for any purpose except those specifically addressed in this policy; 3) begin a steady and purposeful movement away from its dependency on the SSN in performing its functions and processes; and 4) follow University guidelines for the retention and destruction of records containing the SSN.

Notification Requirement: Any University office that collects SSN from an individual must provide a disclosure statement approved by the Data Policy Advisory Committee. Notifications for students, employees, and affiliates/guests are provided in Appendix B.

APPENDIX A

Uses for Social Security Numbers (SSN) (Subject to change)

Employment: The SSN is required for a variety of employment matters; such as tax withholding, FICA, Medicare, etc. SSN may also be used and maintained if it is supplied by an employee as documentation when completing the Federal I-9 Employment Authorization Form.

Application and Receipt of Financial Aid: Any student who applies for student aid by use of the federal Free Application For Student Assistance (FAFSA) is required to provide his SSN. Students are also required to provide SSNs when applying for student education loans.

Tuition Remission: The SSN is required for state reporting of taxable tuition remission benefits received by employees, their spouses and dependents, and by graduate assistants.

Veterans Administration Benefits: The SSN is required for enrollment verification and reporting on all Veterans Administration beneficiaries.

IRS Reporting: The SSN is used for producing federally required 1098-T forms, which report the amount of tuition paid to the University during the tax year. Copies of these forms are mailed to students each year, and the information reported to the IRS. In addition, the University reports the value of all taxable and non-taxable scholarships and grants awarded to non-resident aliens to the IRS.

Inter-Institutional Communication and Information Exchange: Many institutions, including postsecondary educational institutions, use the SSN as a student identifier. To ensure the accuracy of inter-institutional data exchanges (transcripts, transfer credit evaluations, USM ArtSys data base, MHEC, etc.) the SSN may be used for the exchange of information from student academic records between appropriate institutions including other colleges and universities.

Tracking Name Changes of Students and Alumni: The SSN is also used internally to track name changes of students and alumni of the University.

APPENDIX B

REQUIRED DISCLOSURE STATEMENTS

Student Notification

"Use of Social Security Number (SSN) - Students

Section 15-110 of the Education Article of the Annotated Code of Maryland prohibits the use of SSN on University identification cards. Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, also require that when any Federal, State, or local government agency requests an individual to disclose his or her Social Security Number (SSN), that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information, whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University.

Accordingly, each applicant for admission is advised that disclosure of his or her SSN is required as a condition for making application to the University of Maryland for purposes of administering federal financial aid programs and complying with various State and Federal reporting requirements including reporting to the IRS. The University may use a student's SSN to accurately report federally required data, to generate various federal tax and financial aid reports, and to ensure the accuracy of student data that is exchanged within the University of Maryland, between post-secondary education institutions, with the University System of Maryland and other outside entities as necessary or required for the conduct of legitimate University business and consistent with applicable law. The SSN will be maintained in a secure and confidential manner and not be re-disclosed for any other purpose.

The authority for requesting disclosure of a student's SSN is grounded in various federal laws including but not limited to: 42 USC 405c, affecting wage reporting and withholdings; 34 CFR 668.14 and 34 CFR 668.16, relating to student aid programs; and 26 CFR 1.6050S-1, addressing Internal Revenue Code reporting requirements pertaining to tuition payments.

In addition, it should be noted that the SSN of a parent, guardian or spouse of an applicant is also requested if the student claims dependency on that person for financial aid or residency for tuition purposes. A parent, guardian or spouse is advised that disclosure of his or her SSN is necessary for the above student purpose and failure to provide it may affect the student's financial aid or tuition status. A parent's, guardian's or spouse's SSN will only be used for the purpose for which it was collected and will not be maintained in any other system of records.

A unique U ID Number is assigned to students as part of their initial application to the University and is used for all University identification purposes."

Employee Notification

"Use of Social Security Number (SSN) – Employees

Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, requires that when any Federal, State, or local government agency requests an individual to disclose his or her social security number, that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information, whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University .

Accordingly, each employee is advised that disclosure of his or her SSN is required as a condition of employment at the University of Maryland in complying with State and Federal employment matters including but not limited to, the withholding and reporting of State and Federal income tax, FICA, and Medicare insurance tax. Additionally, the SSN may be used and maintained, when supplied by an employee, as documentation for completing the Federal I-9 Employment Authorization Form. The employee's SSN will be used to accurately record state and federal required data as necessary or required for the conduct of legitimate University business and consistent with applicable law. This number will be maintained in a secure and confidential manner and not be re-disclosed for any other purpose.

The authority for requesting disclosure of an employee's SSN is grounded in various federal laws including but not limited to, 42 U.S.C. 405c, affecting wage reporting and withholdings.

Efforts to limit the use of SSN include the issuance of a unique U ID Number that is assigned to all employees as part of their initial employment and will be used for all University identification purposes."

Affiliates Notification

"Use of Social Security Number (SSN) – Affiliates/Guests who receive University services and are not students, employees, or non-paid appointees.

Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, requires that when any Federal, State, or local government agency requests an individual to disclose his or her social security number, that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information, whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University .

Accordingly, each affiliate/guest is advised that disclosure of his or her SSN is requested as a condition of applying for services from the University of Maryland for the purpose of

administering those services. The University may use an affiliate or guest's SSN to accurately identify affiliates/guests, to coordinate services administered by different departments, and to ensure accuracy of data as necessary for the conduct of legitimate University Business and consistent with applicable law. The SSN will be maintained in a secure and confidential manner and not be re-disclosed for any other purpose.

A unique U ID Number is assigned to affiliates/guests as part of their initial request to receive University services and is used for all University identification purposes."

Appendix N: TRANSFER CREDIT POLICY MARYLAND HIGHER EDUCATION COMMISSION (TITLE 13 B)

Administrative History
Effective date: December 4, 1995 (22:24 Md. R. 1901)
Regulations .02, .03, and .05 amended. Effective date: July 1, 1996 (23:13 Md. R. 946)
Authority: Education Article, 11-201 - 11-206, Annotated Code of Maryland

Updates and text listed by individual articles 1 -10 can be found at www.dsd.state.md.us/comar/SubtitleSearch.aspx?search=13B.06.01.

Appendix O: POLICY ON PROMOTING RESPONSIBLE ACTION IN MEDICAL EMERGENCIES V-1.00(J)

http://president.umd.edu/administration/policies/section-v-student-affairs/v-100j

Appendix P: UNIVERSITY OF MARYLAND IMMUNIZATION POLICY V-1.00(H)

The policy below is current as of this publication. For more information and possible updates go to: http://president.umd.edu/administration/policies/section-v-student-affairs/v-100h

(Approved by the President August 1, 1991; revised June 1, 2000; amended February 4, 2014)

I. Policy.

The University enforces a mandatory pre-matriculation immunization requirement to reduce the incidence and risk of vaccine-preventable disease in the university community. This policy meets the regulatory requirements of the State of Maryland Department of Health and Mental Hygiene. It is also consistent with the recommendations for pre-matriculation immunizations of the Advisory Committee on Immunization Practices (ACIP) of the U.S. Center for Disease Control and Prevention, and the American College Health Association.

II. Applicability.

This policy applies to all undergraduate and graduate degree and non-degree seeking students, regardless of credit hours, taking courses on campus at the University's main campus or any of

its satellite locations. Students taking courses online, overseas, or at their place of employment if employment is off-campus, are exempt from this policy.

III. Immunization Requirements.

A. All students to whom this policy applies shall be required to provide proof of 2 MMR immunizations or 2 measles, 1 mumps, 1 rubella and tetanus/diphtheria/pertussis (Td/Tdap) within the past 10 years. These immunization requirements do not apply to students born before 1957. Students living in on-campus residence halls must also provide proof of meningococcal vaccine within 5 years of matriculation, or sign the waiver on the University's immunization form.

B. An immunization form must be completed and returned to the Health Center prior to the first day of classes.

C. Students in noncompliance with this requirement shall be unable to drop/add classes or register for their second semester. This restriction shall be lifted by the University Health Center upon receipt of the required information or the granting of an approved waiver as described in Section D.

D. Exemptions:

1. A student who objects to immunization upon the grounds that it conflicts with his or her bonafide religious beliefs and practices may not be required to present a physician's certificate of immunization in order to register for classes. A religious exemption may be obtained by submitting the request to the Director of the Health Center. In case of an epidemic or disease outbreak, declared by the State of Maryland Secretary of Health and Mental Hygiene or his/her designee, the student must be immunized or not attend classes or functions on campus until the outbreak has resolved.

2. A student may be exempted from an individual vaccine-specific immunization requirement if he or she presents a written statement from a licensed physician or a local deputy state health officer indicating that immunization is medically contraindicated. The physician's statement shall state whether the contraindication is permanent or temporary. If temporary, the physician must provide a date by which the student will receive the vaccine and provide documentation when the immunization has been completed. Should there be an epidemic or disease outbreak that is pertinent to the student's immunization status, the student cannot attend classes or functions on campus until the outbreak has resolved.

Appendix Q: POLICY ON STUDENT SOCIAL MEDIA PRIVACY V-1.20

www.usmh.usmd.edu/regents/bylaws/SectionV/V120.pdf

Appendix R: POLICY ON ACADEMIC ACHIEVEMENT IN INTERCOLLEGIATE ATHLETICS V-2.20

http://president.umd.edu/administration/policies/section-v-student-affairs/v-220

Appendix S: UNIVERSITY OF MARYLAND DISABILITY & ACCESSIBILITY POLICY AND PROCEDURES VI-1.00(D)

http://www.president.umd.edu/administration/policies/section-vi-general-administration/vi-100d

Appendix T: UNIVERSITY OF MARYLAND POLICY ON EXCUSED ABSENCE V-1.00(G)

http://www.president.umd.edu/administration/policies/section-v-student-affairs/v-100g

Appendix U: UNIVERSITY OF MARYLAND GRADING SYMBOLS AND NOTATIONS USED ON ACADEMIC TRANSCRIPTS III.6.20(A)

http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-620a

Appendix V: UNIVERSITY OF MARYLAND POLICY AND PROCEDURES ON ACADEMIC CLEMENCY III-1.30(A)

http://www.president.umd.edu/administration/policies/section-iii-academic-affairs/iii-130a

Approved Courses

AASP -- African American Studies

AASP 100 Introduction to African American Studies (3) Significant aspects of the history of African Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

AASP 101 Public Policy and the Black Community (3) Formerly: AASP300. The impact of public policies on the black community and the role of the policy process in affecting the social, economic and political well-being of minorities. Particular attention given to the post-1960 to present era.

AASP 187 The New Jim Crow: African-Americans, Mass Incarceration and the Prison Industrial Complex (3) Recommended: AASP100. Students will examine the birth of the racial caste system following the abolition of slavery, the parallels between the racial hierarchy of the Jim Crow system and contemporary mass incarceration, and the rise of the prison industrial complex as a multi-billon business which thrives on the oppression of low-income populations and poor communities of color.

AASP 200 African Civilization (3) A survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

AASP 202 Black Culture in the United States (3) The course examines important aspects of African American life and thought which are reflected in African American literature, drama, music and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the 19th-century to the present.

AASP 258 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

AASP 274 Creative Writing Through The Eyes of African Americans: A Beginning Workshop (3) Restriction: Must not have completed any courses from ENGL278C, AASP274, AASP298W, ENGL274, ENGL271, ENGL294N, or ENGL294. Also offered as: ENGL274. Credit only granted for: ENGL274, ENGL278C, ENGL294, ENGL294N, AASP274 or AASP298W. Formerly: AASP298W. Introduction to theory and practice of writing fiction, drama and poetry, with an emphasis on African American literary models. Critical reading, exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

AASP 297 Research Methods in African American Studies (3) Prerequisite: AASP101 or AASP202. Restriction: Must be in African American Studies program. Credit only granted for: AASP297 or AASP299R. Formerly: AASP299R. Introduces African American Studies majors to the basic research skills, methodologies, sources, and repositories for studying African Diaspora. Students will be required to select a research topic, write a research proposal, develop an annotated bibliography, and in the process will be prepared for completing their senior thesis or other significant writing projects necessary to fulfill the requirements of the major.

AASP 298 Special Topics in African American Studies (3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary and inter-disciplinary educational experience to explore issues relevant to black life, cultural experiences, and political, economic, and artistic development.

AASP 299 Selected Topics in African American Studies (1-3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary academic exploration of the cultural, political, and economic issues relevant to Africans and African-Americans.

AASP 301 Applied Policy Analysis and the Black Community (3) Prerequisite: AASP101; and (ECON201 or ECON200). Recommended: Completion of one semester of statistics is recommended. Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.

AASP 303 Computer Applications in African American Studies (3) Prerequisite: STAT100, MATH107, MATH111, or SOCY201; or students who have taken courses with comparable content may contact the department. Introduction to statistics and database processing software used in model estimation and simulation in policy analysis. Special emphasis on applications for applied research on policy problems confronting minority communities.

AASP 305 Theoretical, Methodological and Policy Research Issues in African American Studies (3) Prerequisite: AASP301; and (STAT100, MATH111, PSYC200, BMGT230, or SOCY201). Or students who have taken courses with comparable content may contact the department. Formerly: AASP401. Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of theoretical arguments, epistemological questions of various methodologies and the relationship between policy making and policy research.

AASP 310 African Slave Trade (3) Prerequisite: AASP202 or AASP100; or permission of BSOS-African American Studies department. Formerly: AASP311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

AASP 313 Black Women in United States History (3) Restriction: Sophomore standing or higher. Also offered as: WMST314. Credit only granted for: AASP498W, AASP313, HIST329E, WMST314, or WMST498N. Formerly: AASP498W. Black American women's history is examined from slavery to the present. The principal focus of the readings discussions and student assignments will be based upon gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social change agents. A variety of primary source materials on black women's experiences will be utilized.

AASP 314 The Civil Rights Movement (3) Prerequisite: AASP100 or HIST157. Survey of the twentieth century civil rights movement from the desegregation of UM Law School through the National Black Political Congress in Gary in 1972. Major themes include leadership, legal and constitutional challenges, non-violence, Black Power, and Pan-Africanism.

AASP 358 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

AASP 386 Experiential Learning (3-6) Restriction: Permission of BSOS-African American Studies department; and junior standing or higher.

AASP 395 Fundamentals of Quantitative Research in Socio-Cultural Perspective (3) Restriction: Must be in African American Studies program; and junior standing or higher. Introduction to quantitative methods for African American Studies majors in the cultural and social analysis concentration. Basics of survey design and experimental design and data analysis and use of statistical software programs.

AASP 396 Independent Study Non-Thesis Option (3) Prerequisite: AASP386 and AASP297. Restriction: Must be in African American Studies program. Credit only granted for: AASP396 or AASP397. A research seminar that allows African American Studies majors to complete an independent study research project in lieu of completing the AASP397: Senior Thesis. Students will examine various concepts of race, gender, labor and ethnicity in the seminar lecture component to be applied toward their specific research projects.

AASP 397 Senior Thesis (3) Restriction: Permission of BSOS-African American Studies department. Directed research in African American Studies resulting in the completion and defense of a senior thesis.

AASP 398 Selected Topics in the African Diaspora (3) Repeatable to 6 credits if content differs. Analysis of the historical experiences and cultures of Africans in the diaspora.

AASP 400 Directed Readings in African American Studies (3) Prerequisite: AASP202 or AASP100. The readings will be directed by the faculty of African American Studies. Topics to be covered will be chosen to meet the needs and interests of individual students.

AASP 402 Classic Readings in African American Studies (3) Prerequisite: AASP202 or AASP100. Classic readings of the social, economic and political status of blacks and other minorities in the United States and the Americas.

AASP 411 Black Resistance Movements (3) Prerequisite: AASP100. A comparative study of the black resistance movements in Africa and America; analysis of their interrelationships as well as their impact on contemporary pan-Africanism.

AASP 441 Science, Technology, and the Black Community (3) Prerequisite: HIST255, AASP202, or AASP100; or permission of BSOS-African American Studies department. Scientific knowledge and skills in solving technological and social problems, particularly those faced by the black community. Examines the evolution and development of African and African American contributions to science. Surveys the impact of technological changes on minority communities.

AASP 443 Blacks and the Law (3) Prerequisite: HIST255, AASP202, or AASP100; or permission of BSOS-African American Studies department. The relationship between black Americans and the law, particularly criminal law, criminal institutions and the criminal justice system. Examines historical changes in the legal status of blacks and changes in the causes of racial disparities in criminal involvement and punishments.

AASP 468 Special Topics in Africa and the Americas (3) Repeatable to 6 credits if content differs. Cultural, historical and artistic dimensions of the African experience in Africa and the Americas.

AASP 478 Humanities Topics in African American Studies (3) Repeatable to 6 credits if content differs. Advanced studies in the humanities, often requiring prerequisites, focusing on the literary, artistic and philosophical contributions of Africans and African Americans.

AASP 483 Gender, Sexuality and the Black Family (3) Prerequisite: AASP100. Credit only granted for: AASP483 or AASP498F. Formerly: AASP498F. Examining the historical, economic, social, and scholarly construction of African American family structures. The problematization of "Black matriarchy," hetero- and homosexuality, bi-racialism, and other efforts to "normalize" African Americans to conform to Eurocentric and religious concepts of family will be critically analyzed.

AASP 493 Feminist and Nationalist Thought in Black Communities (3) Prerequisite: AASP101 or AASP100. Credit only granted for: AASP493 or AASP499W. Formerly: AASP499W. The historical and theoretical foundations of feminist and nationalist thought in Black Communities will be examined. Further, we will discover why feminist and nationalist thought has been routinely ignored or misrepresented as disparate, if not oppositional, themes in Black intellectual and political life.

AASP 498 Special Topics in Black Culture (3) Prerequisite: AASP202 or AASP100. Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary African and African American society. Emphasis on the social, political, economic and behavioral factors affecting blacks and their communities. Topics vary.

AASP 499 Advanced Topics in Public Policy and the Black Community (3) Prerequisite: AASP301; or permission of BSOS-African American Studies department. Repeatable to 6 credits if content differs. Examination of specific areas of policy development and evaluation in black and other communities. Application of advanced tools of policy analysis, especially quantitative, statistical and micro-economic analysis.

AAST -- Asian American Studies

AAST 200 Introduction to Asian American Studies (3) The aggregate experience of Asian Pacific Americans, from developments in the countries of origin to their contemporary issues. The histories of Asian Pacific American groups as well as culture, politics, the media, and stereotypes, viewed from an interdisciplinary perspective.

AAST 201 Asian American History (3) Also offered as: HIST221. Credit only granted for: AAST201, HIST219G, HIST219M, or HIST221. Introduction to the history of Asian Americans and Asians in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans in World War II, the Cold War, and the issues in the civil rights & post-civil rights era.

AAST 222 Immigration and Ethnicity in America (3) Credit only granted for: AAST222 or HIST222. The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in American culture.

AAST 233 Introduction to Asian American Literature (3) Also offered as: ENGL233. Credit only granted for: ENGL233 or AAST233. A survey of Asian American literature with an emphasis on recurrent themes and historical context.

AAST 298 Special Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. An introductory multidisciplinary and interdisciplinary educational experience to explore issues relevant to Asian American life, cultural experiences; and political, economic, and artistic development.

AAST 378 Experiential Learning (3) Restriction: Permission of UGST-Undergraduate Studies. Repeatable to 6 credits. Field experience/internship in professional organizations and appropriate private and governmental agencies serving the Asian American community.

AAST 388 Independent Research (1-3) Restriction: Permission of UGST-Undergraduate Studies. Repeatable to 6 credits if content differs. Directed, independent study in Asian American Studies resulting in the completion of an original research paper.

AAST 398 Selected Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. Study of a specific theme or issue involving the Asian America experience.

AAST 420 Asian American Women: The Social Construction of Gender (3) Restriction: Must not have completed WMST420. Also offered as: WMST420. Credit only granted for: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class produce and reproduce inequality with implications for Asian Americans and the broader society.

AAST 424 Sociology of Race Relations (3) Prerequisite: 6 credits in SOCY courses; or permission of UGST-Undergraduate Studies. Restriction: Must not have completed SOCY424. Also offered as: SOCY424. Credit only granted for: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

AAST 443 Asian American Politics (3) Credit only granted for: AAST4898T, AAST443, GVPT368C or AMST 498J. Formerly: AAST 498T. Students will gain a greater understanding of 1)the role of Asian Americans in US politics, 2) the political attitudes and behaviors of Asian Americans and 3)how to conduct research on Asian American politics. Though the class will concentrate on Asian Americans, issues related to Asian American politics will be examined within the larger context of America's multicultural political landscape.

AAST 498 Advanced Topics in Asian American Studies (3) Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary Asian American society. Emphasis on the social, political, economic, and behavioral factors affecting Asian Americans and their communities.

AAST 499 Senior Thesis (3) Prerequisite: AAST201 and AAST200. Restriction: Permission of UGST-Undergraduate Studies; and must be in Asian American Studies program. Repeatable to 6 credits if content differs. Under the supervision of faculty, research regarding a specific topic of the Asian American experience will be completed.

AGNR -- Agriculture and Natural Resources

AGNR 100 Agriculture Discovery: An Educational Odyssey Exploring Food, Culture, and the Environment (3) Explores the history, cultural impact, and current issues of agriculture. Students are exposed to the wide range of professional opportunities associated with the use of plants and animals in

the production and processing of food for human consumption. Students learn from Agriculture and Natural Resources (AGNR) faculty and USDA collaborators through lectures, labs and field trips to facilities in the Baltimore-Washington area.

AGNR 200 AGNR 2+2 Program Extended Orientation Seminar (1) Prerequisite: Must be a first semester international student enrolled in the AGNR 2+2 Program. Restriction: Must be a first year international student enrolled in the College of Agriculture and Natural Resources 2+2 Program. Additional information: It is strongly recommended that AGNR 2+2 students take AGNR 200 during the first semester at the University. One class meeting per week. This courses is initiated by International Programs and will be coordinated in conjunction with the College of AGNR. Introduces AGNR 2+2 students to University and "American" life. Assists with their successful transition to the College and Agriculture and Natural Resources and the University of Maryland. Helps students to understand their place in AGNR at to learn about the resources available to them.

AGNR 270 Technology Training Seminar (2-3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-College of Agriculture & Natural Resources. Also offered as: BSCI279. Credit only granted for: AGNR270 or BSCI279. A hands-on training seminar about pedagogical applications of information technology and mastery of several technical skills. Special emphasis is placed on gainfully understanding technological issues such as copyright and intellectual property, accessibility, and usability.

AGNR 301 Sustainability (3) Also offered as: PUAF301. Credit only granted for: AGNR301 or PUAF301. Designed for students whose academic majors would be enhanced by the complementary study of a widely shared but hard-to-operationalize aspiration: that present choices should preserve or improve future options rather than foreclose or degrade them. How should we understand sustainability? How might we achieve it? How would we know if we had achieved it? And how could sustainability activists of a rising generation lead by example?

AGNR 386 Experiential Learning (3-6) Restriction: Permission of AGNR-College of Agriculture & Natural Resources. Formerly: AGRI386.

AGNR 388 Honors Thesis Research (3-6) Restriction: Must be admitted to AGNR Honors program. Repeatable to 6 credits if content differs. Formerly: AGRI388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

AGNR 489 Field Experience (1-4) Restriction: Permission of AGNR-College of Agriculture & Natural Resources. Repeatable to 4 credits if content differs. Formerly: AGRI489. Credit according to time scheduled and organization of the course. A lecture series organized to study in depth a selected phase of agriculture not normally associated with one of the existing programs.

AGNR 499 Special Problems (1-3) Formerly: AGRI499.

AMSC -- Applied Mathematics & Scientific Computation

AMSC 420 Mathematical Modeling (3) Prerequisite: MATH240 or MATH461; and (MATH241, MATH246, and STAT400); and permission of CMNS-Mathematics department. Also offered as: MATH420. Credit only granted for: AMSC420 or MATH420. The course will develop skills in mathematical modeling through practical experience. Students will work in groups on specific projects

involving real-life problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

AMSC 452 Introduction to Dynamics and Chaos (3) Prerequisite: MATH246 and MATH240. Also offered as: MATH452. Credit only granted for: AMSC452 or MATH452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

AMSC 460 Computational Methods (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241); and 1 course with a minimum grade of C- from (CMSC106, CMSC131). Also offered as: CMSC460. Credit only granted for: AMSC460, CMSC460, AMSC466, or CMSC466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

AMSC 466 Introduction to Numerical Analysis I (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241); and 1 course with a minimum grade of C- from (CMSC106, CMSC131). Also offered as: CMSC466. Credit only granted for: AMSC460, CMSC460, AMSC466, or CMSC466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

AMSC 498 Selected Topics in Applied Mathematics (1-3) Repeatable to 6 credits if content differs. Topics in applied mathematics of special interest to advanced undergraduate students.

AMST -- American Studies

AMST 101 Introduction American Studies (3) Credit only granted for: AMST101 or AMST201. Formerly: AMST201. Introduces students to the interdisciplinary field of American Studies by examining concepts such as culture, identity, cultural practices, and globalization, as well as theories underlying these concepts. Engages key themes, especially constructions of difference and identity, cultures of everyday life, and America and the world.

AMST 120 Race, Gender, and the Global Economy (3) An exploration of the building blocks of the global economy (e.g. free trade, financial institutions) in relation to racial and gender difference, hierarchies, and ideologies.

AMST 202 Cultures of Everyday Life in America (3) Examine the structures and patterns of everyday life in the U.S., utilizing methods such as ethnography, oral history, survey research, and textual, visual, and material cultural analysis.

AMST 203 Popular Culture in America (3) An introduction to American popular culture, its historical development, and its role as a reflection of and influence on our culture and society.

AMST 204 Film and American Culture Studies (3) Exploration of the American film from a historical perspective, illustrating the motion picture's role as an institutional phenomenon, as a form of communication, and as a source of cross-cultural study.

AMST 205 Material Aspects of American Life (3) Historical survey of American material culture. Ways of describing and interpreting accumulated material evidence (e.g., buildings, town plans) introduced by stressing relationship between artifact and culture.

AMST 207 Contemporary American Cultures (3) World views, values, and social systems of contemporary American cultures explored through readings on selected groups such as middle-class suburbanites, old order Amish, and urban tramps.

AMST 212 Diversity in American Culture (3) Exploration of the role of diversity in the shaping of American culture. Special emphasis will be placed on the multicultural origins of American popular and material culture, such as foodways and entertainment, and on the experience of "Americanization."

AMST 260 American Culture in the Information Age (3) Credit only granted for: AMST260 or AMST298I. Formerly: AMST298I. Examines the ways in which content and form of public information interact with the culture, families & individuals.

AMST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

AMST 298 Selected Topics in American Studies (3) Repeatable to 6 credits if content differs. Cultural study of a specific theme or issue involving artifacts and documents from both past and contemporary American experience.

AMST 328 Perspectives on Identity and Culture (3) Repeatable to 9 credits if content differs. Analysis of the cultural aspect of identity formation and the role of individual or community identities in cultural production. Examination of cultural texts such as film, literature, fashion, artifacts, archival records, architecture, monuments, sports, and paintings.

AMST 340 Introduction to History, Theories and Methods in American Studies (3) Prerequisite: Must have completed AMST201; and 2 courses in AMST. Restriction: Must be in American Studies program; and sophomore standing or higher. Introduction to the process of interdisciplinary research, including research literatures, questions, first-hand sources and library and analytic methods in American Studies. Each student will craft a prospectus for original research.

AMST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

AMST 388 Honors Thesis (3-6) Restriction: Must be admitted to AMST honors program; and permission of ARHU-American Studies department; and senior standing. Repeatable to 6 credits if content differs. Individual research, thesis and oral defense. The research project will be conducted under the supervision of a faculty member.

AMST 398 Independent Studies (1-3) Restriction: Permission of ARHU-American Studies department. Repeatable to 6 credits if content differs. Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.

AMST 418 Cultural Themes in America (3) Repeatable to 6 credits if content differs. Examination of structure and development of American culture through themes such as "growing up American," "culture and mental disorders," "race," "ethnicity," "regionalism," "landscape," and "humor."

AMST 428 American Cultural Eras (3) Repeatable to 6 credits if content differs. Investigation of a decade, period, or generation as a case study in significant social change within an American context. Case studies include "Antebellum America, 1840-1860" and "American culture in the Great Depression."

AMST 429 Perspectives on Popular Culture (3) Repeatable to 6 credits if content differs. Topics in popular culture studies, including the examination of particular genres, themes, and issues.

AMST 432 Literature and American Society (3) Prerequisite: Must have completed 1 course in American Literature or 1 course in American History; or 1 course in SOCY; or 1 course in AMST. Examination of the relationship between literature and society: including literature as cultural communication and the institutional framework governing its production, distribution, conservation and evaluation.

AMST 433 American Humor (3) Credit only granted for: AMST418A or AMST433. Formerly: AMST418A. American humor from the Colonial era through the present in genres including literature, journalism, graphic arts, performance, and modern media. How humor expresses and mediates important social and cultural concerns including politics, religion, race and ethnicity, gender and topical issues.

AMST 450 Seminar in American Studies (3) Prerequisite: AMST201 and AMST340; and 1 course in AMST. Restriction: Senior standing; and must be in American Studies program. Developments in theories and methods of American Studies scholarship, with emphasis upon interaction between the humanities and the social sciences in the process of cultural analysis and evaluation.

AMST 498 Special Topics in American Studies (3) Repeatable to 9 credits if content differs. Topics of special interest.

AMST 499 Independent Studies (1-3) Restriction: Permission of ARHU-American Studies department; and must be in American Studies program. Repeatable to 6 credits if content differs. Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.

ANSC -- Animal Science

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

ANSC 101 Principles of Animal Science (3) A comprehensive overview of the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. The role of science in modern food production using animals will be emphasized.

ANSC 103 Principles of Animal Science Laboratory (1) Prerequisite: Must have completed or be concurrently enrolled in ANSC101. Restriction: Must be in one of the following programs

(Environmental Sci & Pol-Environment & Agriculture; Agricultural and Veterinary Medicine; Agricultural Science and Technology) ; or must be in a major within the AGNR-Animal & Avian Sciences department; or permission of department required for students in other College of AGNR programs. Laboratory focusing on the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. Labs will include live animals. Offered in fall semester only.

ANSC 110 Pasture Management and Hay Production (2) Credit only granted for: ANSC110 or INAG116. Identification of forage species suitable for grazing and hay production for horses and other livestock. Crop production including: fertilization and nutrient management, irrigation and drought management, grazing management, weed identification and control, facility layout and design.

ANSC 211 Anatomy of Domestic Animals (4) Prerequisite: ANSC101 and ANSC103. And BSCI105; or (BSCI170 and BSCI171). Restriction: Must be in one of the following programs (Environmental Sci&Pol-Wildlife Resources & Cons; Animal Sciences: Animal Care & Management; Animal Sciences: Equine Studies; Animal Sciences: Laboratory Animal Care; Animal Sciences: Sciences/Preprofessional; Animal Sciences: Animal Biotechnology; Agricultural and Veterinary Medicine). Covering the anatomy of major species of domestic animals. The lecture portion utilizes a systemic approach to provide a general knowledge of both gross and microscopic mammalian structure. Comparative differences between the major domestic species are covered in these lectures. A regional approach is taken to study the gross anatomy of major domestic species in the laboratory portion. Offered fall semester only.

ANSC 212 Applied Animal Physiology (3) Prerequisite: ANSC211; or students who have taken courses with comparable content may contact the department. The physiology of domesticated animals with emphasis on functions related to homeostasis, and the physiological adaptation to environmental influences.

ANSC 214 Applied Animal Physiology Laboratory (1) Prerequisite: Must have completed or be concurrently enrolled in ANSC212. Application of physiological laboratory techniques to domestic and lab animals.

ANSC 220 Livestock Management (3) Prerequisite: ANSC101 and ANSC103. Management of meat animals including beef, sheep, and swine. This course will emphasize obtaining optimal efficiency of production through the integration of leading edge breeding, feeding, management, and marketing practices.

ANSC 225 Love Me, Hate Me, Use Me, Save Me: Our Conflicting Views of Animals (3) Examine the evolution of human-animal relationships and consider some of the major social an scientific debates that have arisen in the last century as a result of our rapidly changing and diverse views about animals.

ANSC 227 Eating with Eyes Wide Open (3) Students will investigate the tension that is created by trade-offs that, knowingly or not, are made by consumers relative to agricultural production methods and dietary choices. Course will inform students about their food supply so they can make informed decisions and practice intentional or informed eating.

ANSC 232 Horse Management (3) Prerequisite: ANSC101 and ANSC103. Credit only granted for: ANSC232 or ANSC332. Formerly: ANSC332. An introductory course on the care, management, and use of horses. Major topics include the industry, breeds, conformation, feeding, health, reproduction, facilities and business.

ANSC 233 Equine Behavior (2) Prerequisite: ANSC101, ANSC103, and ANSC232. Credit only granted for: ANSC489B or ANSC233. Formerly: ANSC489B. Both normal and anomalous behavior of horses will be covered. Emphasis will be given to techniques based on knowledge of behavior that are known to be safe and effective in handling horses.

ANSC 235 Applied Small Ruminant Parturition (2) Prerequisite: Minimum grade of C- in ANSC101 and ANSC103. Restriction: Must be in one of the following programs (Animal Sciences: Animal Care & Management; Animal Sciences: Equine Studies; Animal Sciences: Laboratory Animal Care; Animal Sciences: Sciences/Preprofessional; Animal Sciences: Animal Biotechnology; Agricultural and Veterinary Medicine). Popularly known as "Lamb Watch", the course provides an immersion environment for learning and understanding pre- and post-natal care of ewes and lambs through direct, hands-on involvement in the birthing process and care of the neonate through weaning. Covered topics include zoonoses, basic reproductive physiology of the sheep, normal and abnormal delivery, management of lambs, qualitative assessment, breeding principles, etc.

ANSC 236 Equine Business Management (3) Prerequisite: ANSC232. Recommended: AREC250. Credit only granted for: ANSC236 or INAG232. The study and practice of applying decision-making skills and tools needed for operating a profitable equine boarding or training stable business.

ANSC 237 Equine Reproduction (3) Prerequisite: ANSC232. Credit only granted for: ANSC237 or INAG233. Additional information: Course participation will include nightly checks of mares in the two weeks prior to parturition, and out-of-class time imprinting and working with newborn foals. Students learn the fundamental skills necessary to manage equine reproductive services including anatomy/physiology of genital tracts, estrus detection, manipulation of the estrous cycle, survey of reproductive techniques, infertility, mare, foal and stallion management. Students will be required to attend a foaling and check mares outside of regularly scheduled class time.

ANSC 242 Dairy Cattle Management (3) Prerequisite: ANSC101 and ANSC103. Formerly: ANSC240 and ANSC241. All aspects of dairy production, including nutrition, reproduction, mastitis control, milking management, farmstead facilities, financial management and forage production.

ANSC 244 Dairy Cattle Type Appraisal (1) Prerequisite: Permission of AGNR-Animal & Avian Sciences department. Laboratory. Analysis of dairy cattle type with emphasis on the comparative judging of dairy cattle.

ANSC 250 Companion Animal Care and Management (3) Credit only granted for: ANSC250 and ANSC305. Formerly: ANSC305. Care and management of the companion small animals. Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds and others as class interest and schedule dictate. Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.

ANSC 252 Introduction to the Diseases of Wildlife (3) Prerequisite: BSCI105; or (BSCI170 and BSCI171); or permission of AGNR-Animal & Avian Sciences department; or students who have taken courses with comparable content may contact the department. The principal diseases of North American wildlife will be briefly considered. For each disease, specific attention will be given to the following: signs evidenced by the affected animal or bird, causative agent, means of transmission and effects of the disease on the population of the species involved.

ANSC 255 Introduction to Aquaculture (3) Prerequisite: ANSC101 and ANSC103; or must have completed an introductory biology course. Introduces the art and science of rearing aquatic animals and

the essential principles of aquaculture. Students receive hands-on training in the methods required for successful husbandry and management of aquatic animals in their water environment.

ANSC 260 Laboratory Animal Management (3) Prerequisite: ANSC101 and ANSC103. Credit only granted for: ANSC260 or ANSC413. Formerly: ANSC413. A comprehensive course in care and management of laboratory animals. Topics covered include regulations governing the use of animals in research, laboratory animal facility design and management, animal research models, animal health management and husbandry, responsibilities of lab animal workers and career opportunities in the field. Hands-on labs focus on lab animal handling, husbandry and common techniques. Field trips are required, and you must attend a minimum number of field trips which will be held during lab time.

ANSC 262 Commercial Poultry Management (3) Prerequisite: ANSC101 and ANSC103. Theory and science of rearing poultry and marketing poultry meat and eggs in the commercial sector. Includes current issues, organization of the industry, as well as fundamental biology of the domestic chicken. Students will help raise a flock of broiler chickens. Field trips to commercial poultry operations are required.

ANSC 270 Animal Enterprise Management (3) Prerequisite: ANSC101 and ANSC103; or permission of instructor. Credit only granted for: ANSC270 or AREC306. General principles of enterprise organization, management, and operation as applicable to food, livestock, and companion animals. Enterprise planning and establishment, management of financial, human, and animal resources, and other related topics will be investigated.

ANSC 275 Introduction to Veterinary Medical Science and Practice (3) Prerequisite: BSCI105; or (BSCI170 and BSCI171). The fundamentals of clinical veterinary medical practice and the research that supports it. Topics presented will include the histology, gross anatomy and physiology of the musculoskeletal, cardiovascular, respiratory, reproductive, digestive, renal and neurological systems as they relate to the description of specific disease states taught in this course. Additionally, examples of diseases caused by pathologic disturbances to these systems will be discussed, as well as the basic principles of preventative health care, diagnostic testing and pharmacologic intervention. Significant attention will be given to research in veterinary science and the practice of evidence-based medicine. This course is intended for any student interested in veterinary medicine, animal physiology, or medical science.

ANSC 314 Comparative Animal Nutrition (3) Prerequisite: ANSC101 and ANSC103; and (CHEM231 or CHEM104). The fundamental role and implications of dietary preference, gastrointestinal physiology and nutrients in animal nutrition. Biochemical roles of nutrients in metabolism, digestion, absorption and assimilation as it relates to various life processes.

ANSC 315 Applied Animal Nutrition (3) Prerequisite: ANSC314. Elements of nutrition, source characteristics and adaptability of various feedstuffs to several classes of livestock. A study of the composition of feeds, nutrient requirements and computerized formulation of economic diets and rations for livestock.

ANSC 327 Molecular and Quantitative Animal Genetics (3) Prerequisite: ANSC101, CHEM131, and ANSC103. And BSCI105; or (BSCI170 and BSCI171). Classical, molecular, and population genetics with specific emphasis on animal systems will be covered. Also, disseminate information on molecular approaches for manipulating genetics at the whole animal level (transgenic and cloning). Other model organisms will be discussed to provide a conceptual framework.

ANSC 330 Equine Science (3) Prerequisite: ANSC232; or permission of instructor. Recommended: ANSC212 and ANSC211. Credit only granted for: ANSC230 or ANSC330. Formerly: ANSC230. Scientific principles of horse behavior, anatomy, physiology, locomotion, nutrition, reproduction, growth, health and disease as applied to horses are emphasized.

ANSC 340 Health Management of Animal Populations (3) Prerequisite: BSCI223; and (ANSC220, ANSC232, ANSC242, ANSC250, ANSC255, ANSC260, or ANSC262). Recommended: ANSC212. Credit only granted for: ANSC340 or ANSC412. Formerly: ANSC412. A study of common and emerging animal diseases and their prevention and control. The main focus will be on livestock and poultry diseases. However, zoonotic, wildlife, and laboratory animal diseases will also be discussed along with risk assessment, bioterrorism counter-measures, and animal welfare, especially as these topics interface or impact animals used in food production.

ANSC 379 Animal Science Undergraduate Teaching Assistant Seminar (2) Prerequisite: Permission of instructor. Repeatable to 8 credits. Formerly: ANSC390. Seminar course for undergraduate teaching assistants within ANSC.

ANSC 386 Experiential Learning (3-6) Prerequisite: Permission of AGNR-Animal & Avian Sciences department. Restriction: Junior standing or higher.

ANSC 388 Honors Thesis Research (3-6) Restriction: Must be in the AGNR Honors program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

ANSC 389 Experiential Learning (3-6) Prerequisite: Permission of AGNR-Animal & Avian Sciences department. Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. Formerly: ANSC386.

ANSC 398 Seminar - Research (1) Prerequisite: ANSC101 and ANSC103. Repeatable to 2 credits if content differs. Presentation and discussion of current literature and research work in animal science.

ANSC 399 Special Problems in Animal Science (1-2) Prerequisite: ANSC101 and ANSC103. Restriction: Permission of AGNR-Animal & Avian Sciences department; and junior standing or higher. Repeatable to 6 credits if content differs. Work assignments are designed to be proportional to the amount of credit. Students are expected to develop an abstract, fact sheet, manuscript, oral presentation, poster, webpage, journal-log, or other scholarly product associated with their study and/or project.

ANSC 410 The Gut Microbiome and its Roles in Health and Disease (3) Prerequisite: BSCI223, ANSC212, ANSC327, EPIB301, BSCI222, BSCI421, or NFSC430; or students who have taken courses with comparable content may contact the department. Credit only granted for: ANSC489M or ANSC410. Formerly: ANSC489M. A comprehensive perspective of the role of gut microbiome/microflora in nutrition, metabolism, disease prevention and health issues including farm animal health and food value, and human gastrointestinal health and immunity.

ANSC 420 Critical Thinking in Animal Science (3) Prerequisite: ANSC314. Recommended: AREC306 and AREC250. Restriction: Junior standing or higher. Employ methods to systematically solve selected problems that typically arise on farms or allied businesses related to animal enterprises.

ANSC 435 Experimental Embryology (3) Prerequisite: ANSC212. Recommended: Completion of one course in reproductive physiology is recommended. Credit only granted for: ANSC435 or ANSC489M. Formerly: ANSC489M. Experimental approaches to mammalian embryology with emphasis on domestic livestock systems as applied to research and production systems. Lab will include hands-on experiments and demos of in vitro embryo production, embryo splitting, cell injection and nuclear transfer.

ANSC 437 Animal Biotechnology (3) Prerequisite: ANSC327; or students who have taken courses with comparable content may contact the department. Key concepts and current issues in animal biotechnology are covered. Current techniques and applications systems as well as social, ethical, and regulatory issues associated with biotechnology will be discussed.

ANSC 440 Zoonotic Diseases and Control (3) Prerequisite: BSCI223, ANSC212, ANSC327, BSCI222, BSCI421, or NFSC430; or students who have taken courses with comparable content may contact the department. Credit only granted for: ANSC440 or ANSC489R. Formerly: ANSC489R. Global perspective of foodborne diseases common to animals and man, specifically those caused by farm animal-originated human pathogens (zoonoses) and their control. A selection of important zoonoses and food safety issues will be specifically covered with an emphasis on the principles of zoonotic disease transmission and control, risk factors to humans, and surveillance methods.

ANSC 443 Physiology of Lactation (3) Prerequisite: CHEM231, ANSC212, and CHEM232. Recommended: BCHM463. A comprehensive survey of lactation in laboratory and domestic animals. Other species are discussed where possible. Emphasis will be placed on physiological aspects of milk synthesis and secretion and on the cellular and molecular biology of mammary gland development.

ANSC 444 Domestic Animal Endocrinology (3) Prerequisite: ANSC212; or permission of instructor. Restriction: Must not have completed ANSC644. Credit only granted for: ANSC489I, ANSC444, or ANSC644. Formerly: ANSC489I. Current developments in endocrinology as it relates to animals used in the production of food and other products important to the well being of humans will be covered.

ANSC 446 Physiology of Mammalian Reproduction (3) Prerequisite: ANSC212 or BSCI440. Anatomy and physiology of reproductive processes in domesticated and wild mammals.

ANSC 447 Physiology of Mammalian Reproduction Laboratory (1) Prerequisite: Must have completed or be concurrently enrolled in ANSC446. Gross and micro-anatomy, artificial insemination, estrous cycle synchronization and invitro-fertilization procedures and analytical techniques useful in animal management and reproduction.

ANSC 450 Animal Breeding Plans (3) Prerequisite: BIOM301; or students who have taken courses with comparable content may contact the department. Restriction: Junior standing or higher. Design of animal breeding programs for the genetic improvement of livestock and companion animal species. Principles of population and quantitative genetics. Genetic evaluations of animals, selection strategies and crossbreeding systems. Incorporation of advanced statistics and biotechnology into animal breeding plans.

ANSC 452 Avian Physiology (3) Prerequisite: ANSC212. Restriction: Junior standing or higher. The digestive, excretory, respiratory, circulatory, immune, skeletal muscle, endocrine and nervous systems of avian species will be examined.

ANSC 453 Animal Welfare and Bioethics (3) Prerequisite: ANSC101 and ANSC103; or BSCI106; or (BSCI160 and BSCI161); or permission of instructor. Restriction: Junior standing or higher. Ethical concerns related to the use of animals in modern society. Historical and philosophical overview of animal

welfare and bioethics. Applied ethical discussions on human/animal interrelationships, physical and genetic manipulation, and other current issues associated with the treatment of animals used in food production, research, zoos, and as pets.

ANSC 455 Applied Animal Behavior (3) Prerequisite: ANSC101 and ANSC103; or BSCI106; or (BSCI160 and BSCI161). Principles of animal behavior applied to production systems in animal agriculture.

ANSC 460 Comparative Vertebrate Immunology (3) Prerequisite: ANSC212, BSCI201, or BSCI440. Credit only granted for: ANSC460 or ANSC489I. Formerly: ANSC489I. Basic concepts in immunology, and comparing immunity in different vertebrates, including organization of immune systems, innate and adaptive immune responses. Special attention will be paid to how cell-mediated and humoral immune responses are induced in natural infections, and what are the effector mechanisms in both of these processes. Immune response in representative disease models such as infections with viruses and bacteria, cancer, and autoimmune disease will be discussed. Lectures concerning cutting-edge research will also be given.

ANSC 489 Current Topics in Animal Science (1-3) Repeatable to 6 credits if content differs. Examination of current developments in the animal sciences.

ANSC 497 Animal Biotechnology Recombinant DNA Laboratory (3) Prerequisite: ANSC327; or students who have taken courses with comparable content may contact the department. Recommended: ANSC437 and ANSC435. An advanced course offering hands-on experience in performing recombinant DNA experiments. Current molecular biology techniques used for cloning genes, analyzing the gene products, and modifying the genes of animals will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

ANTH -- Anthropology

ANTH 138 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ANTH 220 Introduction to Biological Anthropology (4) Human biological evolution, including the biology of contemporary human groups, non-human primate social behavior, and the fossil, biochemical, and molecular evidence for human evolution. Includes a laboratory study of human population genetics, biochemical variation, and anatomical diversity in modern and fossil human and non-human primate groups.

ANTH 221 Introduction to Forensic Sciences (3) Credit only granted for: ANTH298A or ANTH221. Formerly: ANTH298A. Provides a brief history of forensic sciences, an introduction to some of the techniques used, and a demonstration of some of the applications of forensic sciences. A survey course designed to give the student some exposure to the kinds of scientific knowledge and techniques applied to the medico-legal investigation of death and other crimes.

ANTH 222 Introduction to Ecological and Evolutionary Anthropology (4) Credit only granted for: ANTH220 or ANTH222. An introduction to the evolution of human physiology and human behavior, the relationship between hominid and non-hominid primates, and the study of relationships between a population of humans and their biophysical environment.

ANTH 238 Special Topics Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ANTH 240 Introduction to Archaeology (3) Exploration of the variety of past human societies and cultures through archaeology, from the emergence of anatomically modern humans to the more recent historical past.

ANTH 241 Controversies in Archaeology (3) Credit only granted for: ANTH298B or ANTH241. Formerly: ANTH298B. Archaeologists, scholars who study the cultures of previous times, are continually asked to evaluate the evidence for competing stories about the past. This shows how archaeologists use a critical lens and rigorous methods to assess these claims. Students will learn how the archaeological record is formed and transformed, how archaeologists date sites and objects, how they understand ancient environments, and how they can uncover gender, ethnicity, and nationality in artifactual remains.

ANTH 260 Introduction to Sociocultural Anthropology and Linguistics (3) Culture and social relationships in a wide variety of settings from small-scale to complex societies. An overview of how anthropology analyzes human behavior. Particular attention to the relationship between language and culture.

ANTH 261 Cultures of the World (3) Credit only granted for: ANTH298G or ANTH261. Formerly: ANTH298G. Cultural anthropology is the study of human societies. The principles of cultural anthropology are used to explore the lifeways of various cultures throughout the world. Of particular concern will be the diversity and similarities of different cultures and how anthropologists attempt to understand and compare them.

ANTH 262 Gender and Anthropology (3) Credit only granted for: ANTH262, ANTH298F, or WMST298F. Formerly: ANTH298F and WMST298F. Utilizing ethnographic work from across the world, students will examine gender constructs across several cultures. The primary focus will be the role of women as gendered actors and participants in their day-to-day lives. Students will develop understandings of gender as distinct from the biological categories of sex, and to gain a working knowledge of variability and similarity in gender across cultural systems.

ANTH 263 Sexuality and Culture (3) Credit only granted for: ANTH298K or ANTH263. Formerly: ANTH298K. An overview of sexuality from an anthropological perspective, looking at aspects of sexuality within our own culture and in cultures around the world. Course topics include the biology and culture of sex, gender, physical attraction, sexual orientation, marriage and mating taboos, fertility control, sexually transmitted diseases, and commercial aspects of sex.

ANTH 264 Immigration Policy, Immigrant Lives (3) An examination of the phenomenon of international migration, or immigration. Students develop awareness of how immigration has been framed in the general public and examined by social science disciplines, most prominently anthropology. Examination of case studies of different immigrant groups in distinct geographic contexts will illuminate the varied incorporation experiences of immigrants into U.S. society.

ANTH 265 Anthropology of Global Health (3) An overview of the growing field of global health including health care systems, medical practices, ideas about illness in cross-cultural contexts, issues of health development, global health inequity, and human rights issues. The course will focus on the history of global health, the critique of major international health agencies and their development paradigms, and the political economy of social inequalities and health.

ANTH 266 Changing Climate, Changing Cultures (3) Explore past, present, and future interactions between humans and climate. Discussions, methods-oriented activities, and case study analyses provide students a foundation for appreciating the role of anthropology in understanding, responding to, and preparing for climate change.

ANTH 298 Special Topics in Anthropology (3) Repeatable to 6 credits if content differs. Anthropological perspectives on selected topics of broad general interest.

ANTH 305 Archaeological Methods and Practice (3) Prerequisite: ANTH240, ARTH200, or CLAS180. Also offered as: ARTH305, CLAS305. Credit only granted for: ANTH305, ARTH305, or CLAS305. A team-taught, interdisciplinary course discussing theories, methods, and ethical issues in the practice of archaeology.

ANTH 320 Method and Theory in Biological Anthropology (3) Prerequisite: ANTH220; or permission of BSOS-Anthropology department. Restriction: Must be in Anthropology program; or permission of BSOS-Anthropology department. Credit only granted for: (ANTH320 and ANTH425) or ANTH625. Theoretical and methodological overview of biological anthropology, including evolutionary anthropology, anthropological genetics, physiological anthropology, human biology, primatology, paleoanthropology, human biodiversity, and contemporary selective challenges to modern humanity. Emphasis on core concepts and their research applications.

ANTH 322 Method and Theory in Ecological Anthropology (3) Prerequisite: ANTH220 or ANTH222. Restriction: Must be in a major within the BSOS-Anthropology department. Credit only granted for: ANTH320, ANTH322, ANTH425, or ANTH625. A theoretical consideration of ecological anthropology, focusing on issues related to cooperation, the management of common property, resilience, and sustainability. Explores the methods of sociocultural anthropology, including ethnology, evolutionary game theory and agent-based modeling; and natural-science approaches including behavioral and systems ecology.

ANTH 323 Plagues, Pathogens and Public Policy (3) Credit only granted for: ANTH429A or ANTH323. Formerly: ANTH429A. The impact of diseases on populations from prehistoric times through the present will be examined, along with public perceptions of disease, scientific breakthroughs on treatment and prevention, and the ways that politics and public health policies can enhance or impede the advancement of disease treatment. The natural history of disease, population structure, and immunity will be discussed. The class will address emerging and re-emerging diseases and the ways that first responders, researchers, and policy makers may affect the outcome of an outbreak.

ANTH 338 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ANTH 340 Method and Theory in Archaeology (3) Prerequisite: ANTH240. Restriction: Must be in Anthropology program; or permission of BSOS-Anthropology department. Theory, method, and practice which guides modern anthropological archaeology. Includes research design and execution (from survey through excavation and interpretation), the reconstruction of aspects of past cultures, and the understanding of cultural change and meaning.

ANTH 358 Undergraduate Teaching Assistant (1-3) Prerequisite: ANTH220, ANTH260, or ANTH240. Restriction: Junior standing or higher; and must be in Anthropology program. Repeatable to 6 credits if content differs. Individual instruction course: contact department or instructor to obtain section and index numbers.

ANTH 360 Method and Theory in Sociocultural Anthropology (3) Prerequisite: ANTH260. Restriction: Must be in Anthropology program; or permission of BSOS-Anthropology department. Theoretical approaches and research methods in sociocultural anthropology. Emphasis on current debates, new directions, and their historical antecedents.

ANTH 364 The Anthropology of Religion (3) Prerequisite: ANTH260. Comparative study of religion in social, cultural, political, and economic context. Combines the history of schools of interpretation with a survey of theoretical alternatives and a focus on selected case studies.

ANTH 368 Regional Ethnography (3) Prerequisite: ANTH260; or permission of BSOS-Anthropology department. Repeatable to 6 credits if content differs. Peoples and cultures of a particular region of the world, on the basis of ethnographies, archaeological evidence, and relevant works by social historians and political economists. The regional focus and thematic emphasis will vary by semester.

ANTH 386 Experiential Learning (1-6) Recommended: Completion of advanced courses in relevant subfield of anthropology recommended. Restriction: Permission of BSOS-Anthropology department; and junior standing or higher; and must be in Anthropology program.

ANTH 398 Independent Study (1-3) Restriction: Permission of BSOS-Anthropology department. Repeatable to 9 credits if content differs. Independent interdisciplinary research and reading in specific areas of anthropology.

ANTH 410 Theory and Practice of Health and Community Development (3) Restriction: Junior standing or higher. Also offered as: ANTH610. Credit only granted for: ANTH410 or ANTH610. Introduction to the relationships between culture, health status and practices, and the design of community-based initiatives. The focus is on the use of anthropological knowledge and skills in the analysis of such relationships and in the design of community-based initiatives.

ANTH 421 Nutritional Anthropology (3) Also offered as: ANTH621. Credit only granted for: ANTH421, ANTH428N, or ANTH621. Formerly: ANTH428N. The study of nutrition from an anthropological perspective which includes both biological and cultural aspects of nutrition. We will explore how nutrition can affect culture how culture can affect nutrition. Nutritional anthropology includes the study of cross-cultural variation in diet, nutritional status and subsistence systems as well as variation in these factors over the evolutionary course of human existence, from prehistoric and historic to modem times. Students will be introduced to nutritional anthropology and provided with the basics for assessing reliability and feasibility of nutritional advice and policy encountered in everyday modern life in a global setting.

ANTH 422 Human-Plant-(Human & Bioactive Plant) Interaction (3) Prerequisite: ANTH220 and ANTH320; or permission of BSOS-Anthropology department. Credit only granted for: ANTH422. Formerly: ANTH428I. This seminar course will discuss the evolutionary, historical, cultural, and ecological aspects of coevolution with respect to humans and their interactions with specific bioactive plants. Case studies of human- plant-(pathogen) interactions will be discussed as well as an inclusive survey of anthropologically important phytochemicals. The seminar incorporates human-plant-(pathogen) interactions into models of human evolution and ecology.

ANTH 428 Special Topics in Bioanthropology (3) Repeatable to 6 credits if content differs. Advanced research courses in biological anthropology on changing topics that correspond to new theoretical interests, faculty research interests, or the specialties of visiting scholars. Prerequisites or background knowledge vary with the topic. Check with the department for requirements.

ANTH 429 Advanced Special Topics in Biological Anthropology (3) Repeatable to 6 credits if content differs. Upper level biological anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 438 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ANTH 440 Theory and Practice of Historical Archaeology (3) Prerequisite: ANTH240. Also offered as: ANTH640. Credit only granted for: ANTH440 or ANTH640. Historical archaeology enhances cultural heritage by providing voice for groups who were often unable to record their own histories, such as women, laborers, working class families, and enslaved people. The course provides insight into issues related to race, gender, and ethnicity as they relate to multicultural histories.

ANTH 441 Archaeology of Diaspora (3) Prerequisite: ANTH240. Credit only granted for: ANTH448A, ANTH688Z, or ANTH441. Formerly: ANTH448A. "Diaspora" is defined, theorized, deconstructed, and employed throughout the social sciences. There are context specific relations that define who leaves, when, and how they are received in the new place of settlement. Over the course of the semester the class will actively and critically examine the relevance of historical archaeology and material culture studies in the understanding of the formation, experiences, and transformation of diasporic groups over time and space.

ANTH 442 Public Archeology (3) Credit only granted for: ANTH442, ANTH448V, or ANTH642. Formerly: ANTH448V. Explores the uses and environments for archaeological work through a discussion of museum, electronic media, heritage settings, outdoor history museums, including the legal environment that offers protection for archaeological remains. The course exposes students to the majority of cultural media within which archaeology is currently practiced. The interdisciplinary course is a survey of the progress made within and beyond anthropology in understanding the function of heritage, public memory, tourism, and the other popular uses of materials from the past, including the progress made in linguistics psychology and other cognitive disciplines in understanding the purpose of the past.

ANTH 444 Theories of the Past (3) Prerequisite: ANTH240. Also offered as: ANTH740. Credit only granted for: ANTH448P, ANTH444, or ANTH740. Formerly: ANTH448P. The primary purpose is to highlight some of the key achievements made by archaeologists in informing questions of interest to society from 1850 on. Key achievements include how archaeologists understand elements of the past thought to be central to the development of modern socieity. A secondary purpose is to introduce students to the theories used to understand the place of the past in society and the function of answers to questions thought central to modern social life.

ANTH 445 Laboratory Methods in Archaeology (3) Prerequisite: ANTH496. Recommended: ANTH240. The processing, curation, cataloging and analysis of data is an important part of any archaeology field project. Students will learn that basics of laboratory techniques necessary for the final analysis and interpretation of field data.

ANTH 447 Material Culture Studies in Archaeology (3) Prerequisite: ANTH240. Credit only granted for: ANTH447, ANTH448C, ANTH647, or ANTH689C. Formerly: ANTH448C. An in-depth introduction to the world of material culture studies with a focus on the methods and theories in historical archaeology. Students will look at archaeological data as historical documents, commodities and as symbols expressing ideas.

ANTH 448 Special Topics in Archaeology (3) Prerequisite: ANTH240. Repeatable to 6 credits if content differs. Advanced topics in archaeological research, corresponding to new theoretical developments, faculty research interests, or specialties of visiting scholars. Prerequisites may vary with course topic; check with the department for requirements.

ANTH 449 Advanced Special Topics in Archaeology (3) Repeatable to 6 credits if content differs. Upper level archaeology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 450 Theory and Practice of Environmental Anthropology (3) Restriction: Junior standing or higher. Also offered as: ANTH650. Credit only granted for: ANTH450 or ANTH650. An overview of contemporary application of cultural theory and methods to environmental problems. Topics include the use of theories of culture, cognitive approaches, discourse analysis, and political ecology. Case studies from anthropology, other social sciences, humanities, conservation, and environmental history are used to demonstrate the applied value of a cultural-environmental approach.

ANTH 451 Environmental Archaeology (3) Credit only granted for: ANTH451, ANTH651, ANTH448F, ANTH668F. Formerly: ANTH448F. An overview of modern environmental archaeology as a tool for the interdisciplinary investigation of past and present global change and to engage the long term past with current issues of sustainability and rapid environmental change.

ANTH 453 Archaeology of the Modern City (3) Prerequisite: ANTH240; or permission of instructor. Credit only granted for: ANTH448Q or ANTH453. Formerly: ANTH448Q. An overview of how social scientists, in particular historical archaeologists, approach modern cities as being part of the materiality of the social structure and order.

ANTH 454 Anthropology of Travel and Tourism (3) Also offered as: ANTH654. Credit only granted for: ANTH454 or ANTH654. Review of recent anthropological contributions to the study of travel and tourism development. Topics include the history of travel, political economy of tourism, gender in tourism, the built environment, ecotourism, and heritage tourism.

ANTH 462 Amazon Through Film (3) Credit only granted for: ANTH468D or ANTH462. Formerly: ANTH468D. An interdisciplinary course that utilizes film to consider the Amazon basin, its history, peoples, and landscapes through cinematic representations. The course places the films in the context of film history and critical theory. The course takes into consideration the Brazilian, North American, Mexican, European and Argentine creators of the films and their visions of Amazonia, as well as the audiences and markets to which the films are intended.

ANTH 468 Special Topics in Cultural Anthropology (3) Repeatable to 6 credits if content differs. Advanced courses in varying specialty areas of cultural anthropology that respond to new theoretical developments, faculty research interests, or specialties of visiting scholars.

ANTH 469 Advanced Special Topics in Cultural Anthropology (3) Repeatable to 6 credits if content differs. Upper level cultural anthropology courses on varying topics derived from new interests of the faculty or the specialties of visiting scholars.

ANTH 472 Medical Anthropology (3) Credit only granted for: ANTH472, ANTH468, ANTH672, or ANTH688L. Formerly: ANTH468L. An exploration of the cultural, social, economic and political dimensions of health, disease, and illness. These dimensions will be examined through both the health-seeker's and the care-provider's perspectives.

ANTH 476 Senior Research (3-4) Restriction: Must be in Anthropology program. Credit only granted for: ANTH476 or ANTH486. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of a senior thesis in anthropology.

ANTH 477 Senior Thesis (3-4) Prerequisite: ANTH476. Restriction: Permission of BSOS-Anthropology department; and must be in Anthropology program. Credit only granted for: ANTH477 or ANTH487. Capstone course in which students write a senior thesis on independent research into a current problem in anthropology. The thesis is defined before a committee of faculty.

ANTH 478 Special Topics in Linguistics (3) Recommended: LING200. Repeatable to 6 credits if content differs. Advanced courses in specialty areas that respond to new theoretical developments and faculty research interests in linguistics.

ANTH 486 Honors Research (3-4) Restriction: Permission of BSOS-Anthropology department; and must be in Anthropology program; and must be admitted to University Honors Program or Anthropology Honors Program. Credit only granted for: ANTH486 or ANTH476. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of an honors thesis in anthropology.

ANTH 487 Honors Thesis (3-4) Prerequisite: ANTH486. Restriction: Permission of BSOS-Anthropology department; and must be in Anthropology program; and must be admitted to University Honors Program or Anthropology Honors Program. Credit only granted for: ANTH487 or ANTH477. Capstone course in which students write a thesis on the results of independent research into a current problem in anthropology.

ANTH 491 Applied Urban Ethnography (3) Prerequisite: ANTH260. Also offered as: ANTH617. Credit only granted for: ANTH468B, ANTH491, or ANTH617. Formerly: ANTH468B. The focus is on the use of applied ethnographic field methods in community assessment research in urban settings. Also, it will extend beyond most ethnographic training in which the emphasis is on being there, and relying predominantly on the classical ethnographic methods of recursive observations, participant observations, and a variety of approaches to interviewing.

ANTH 492 Anthropology of the Immigrant Life Course (4) Credit only granted for: ANTH498N, ANTH492, ANTH689N, or ANTH692. Formerly: ANTH498N. Explores social issues affecting local immigrant populations through readings, research and service learning. Theorizing immigration as a social policy issue in the U.S. culture, students learn about the specific contributions that anthropology has made to the understanding of immigration: globalization on the one hand, and the context of daily life in local neighborhoods on the other.

ANTH 496 Field Methods in Archaeology (6) Field training in the techniques of archaeological survey and excavation.

ANTH 498 Advanced Field Training in Ethnography (1-8) Repeatable to 6 credits if content differs. Credit only granted for: ANTH498 or ANTH698. Experience in field research utilizing a variety of ethnographic methods of inquiry.

ANTH 499 Fieldwork in Biological Anthropology (3-8) Field training in techniques of human biology, primatology, or paleoanthropology.

AOSC -- Atmospheric and Oceanic Science

AOSC 123 Causes and Implications of Global Change (3) Also offered as: GEOL123. Credit only granted for: AOSC123, GEOG123, GEOL123, or METO123. Formerly: METO123. Responsible policy and decision making on issues related to the global environment requires understanding of the basic scientific issues, relationships between the geophysical and biological sciences, the impacts on regional and global endeavors, and the political manner in which humans respond. This course embodies an integrated introduction to the broad scientific and social aspects of the global change problem.

AOSC 200 Weather and Climate (3) Prerequisite: MATH107, MATH110, or MATH115. Recommended: Concurrent enrollment in AOSC201. Formerly: METO200. Broad survey of the state of knowledge and problems of atmospheric science. Origin and structure of the atmosphere, meteorological observations, weather maps, forecasting, satellites, energetics, wind, general circulation, storms, severe weather, climate change, air pollution.

AOSC 201 Weather and Climate Laboratory (1) Corequisite: AOSC200. Formerly: METO201. Laboratory exercises to supplement AOSC200, including weather observations, weather map analysis, use of the Internet, forecasting practice and climate modeling.

AOSC 347 Computing and Data Analysis: Deciphering Climate Change Clues (3) Prerequisite: MATH140. Recommended: Familiarity with basic descriptive statistics. Credit only granted for: AOSC347 or AOSC358L. Formerly: AOSC358L. A comprehensive introductory course designed to prepare students to identify, interpret, and visualize Earth's climate variations observed in the past and projected into the future. The class emphasizes real-world applications, providing students with essential hands-on experience using MATLAB for data analysis and visualization, developing analytical skills for observational and modeling data, and performing virtual experiments to distinguish data contributing factors. Students will gain an understanding of the scientific issues concerning the modern global warming debate on detection and attribution including: signal vs noise, trend vs periodicity, natural vs anthropogenic forcing, local vs remote response, mean vs extreme changes, and accuracy vs uncertainty.

AOSC 358 Special Topics in Atmospheric and Oceanic Science (1-4) Repeatable to 12 credits. Special topics in atmospheric and oceanic science are given intensive study. The topic of concentration varies, from semester to semester and depends on student and faculty interests. Often, specialists from other institutions are invited to the campus on a visiting lectureship basis to conduct the course.

AOSC 375 Introduction to the Blue Ocean (3) Also offered as: GEOL375. Credit only granted for: GEOL375 or METO375. Oceans are an important component of the Earth System and this course builds towards Earth System Science education. Oceanography is an intrinsically interdisciplinary subject with strong connections to astronomy (tidal forces), biology (ecosystems), geography (world climate), geology (sea floor tectonics), and physics (waves). We begin with the history of ocean exploration and origin of Earth and life and learn about properties of seawater, air-sea interactions, atmospheric and oceanic circulation, El Nino-Southern Oscillation, waves, tides, and tsunamis.

AOSC 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and must have a learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Formerly: METO386.

AOSC 400 Physical Meteorology of the Atmosphere (3) Prerequisite: 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141); or permission of CMNS-Atmospheric & Oceanic Science department. Formerly: METO400. The application of basic classical physics, chemistry and mathematics

t the study of the atmosphere. Composition of the atmosphere; energy sources and sinks (radiation in the atmosphere; radiative balance and radiative forcing of atmospheric processes); atmospheric thermodynamics; clouds and precipitation physics; atmospheric electricity and optics; mesoscale processes (e.g., orographic mesoscale phenomena and instabilities); air mass boundaries; severe weather, tropical cyclones; storms; global circulation.

AOSC 401 Climate Dynamics and Earth System Science (3) Prerequisite: AOSC400 or AOSC200; or permission of instructor. Formerly: METO401. The global weather and climate system; the natural variability of the atmosphere-ocean-biosphere; carbon cycle and biogeochemistry. Potential human effects: greenhouse effects, deforestation, acid rain, ozone depletion, nuclear winter. Social, political and economic effects of changes in global environment. Policy options.

AOSC 420 Physical Oceanography (3) Prerequisite: MATH141 and PHYS141. Recommended: AOSC200. Also offered as: AOSC670, GEOL670. Credit only granted for: AOSC420, AOSC670, or GEOL670. Ocean observations. Water masses, sources of deep, intermediate, and surface water. Mass, heat, and salt transport, and the meridional overturning circulation. Geochemical tracers and cycles, including carbon. Western boundary currents, mixed layers, and processes maintaining the thermocline. Coastal and estuarine processes. Surface waves and tides. the ocean's role in climate.

AOSC 424 Remote Sensing of the Atmosphere and Ocean (3) Prerequisite: 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141); or permission of instructor. Many of the properties of the atmosphere, ocean, and land surface are most easily observed from satellite remote sensing. This course will provide students with a hands-on introduction to a variety of passive and active sensing techniques and sensors observing our changing environment. Topics include: orbital dynamics and electromagnetic properties of the atmosphere and surface; atmospheric emission characteristics and scattering; chemical composition and spectroscopy; temperature retrievals; detection and retrieval of aerosol, cloud and rain; ocean surface properties; sea surface temperature and color; active sensing of wind stress, sea level, and internal waves; time-dependent gravity; properties of vegetation and ice.

AOSC 431 Atmospheric Thermodynamics (3) Prerequisite: 1 course with a minimum grade of C- from (PHYS171, PHYS161, MATH141). Recommended: MATH246. Credit only granted for: AOSC431 or METO431. Formerly: METO431. Classical thermodynamics applied to both the dry and the moist atmosphere. Composition; phase changes of water; stability concepts; Properties of aerosols and clouds, cloud nucleation and precipitation processes, atmospheric electricity, cloud and precipitation chemistry.

AOSC 432 Dynamics of the Atmosphere and Ocean (3) Prerequisite: AOSC431. Corequisite: MATH246. Credit only granted for: AOSC432, METO432, or AOSC632. Formerly: METO432. Equations of motion and their approximation, scale analysis for the atmosphere and the ocean. Conservation properties. Fluid motion in the atmosphere and oceans. Geostrophic/balanced and ageostrphic/unbalanced motion. Circulation, vorticity, and potential vorticity. Introduction to the boundary layer.

AOSC 433 Atmospheric Chemistry and Climate (3) Prerequisite: CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Atmospheric & Oceanic Science department. Also offered as: CHEM433. Credit only granted for: AOSC433, AOSC633, CHEM433, or CHEM633. Formerly: AOSC434. The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate change, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also

examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.

AOSC 434 Air Pollution (3) Prerequisite: MATH241; or permission of CMNS-Atmospheric & Oceanic Science department. Formerly: METO434. Production, transformation, transport and removal of air pollutants. The problems of photochemical smog, the greenhouse effect, stratospheric ozone, acid rain and visibility. Analytical techniques for gases and particles.

AOSC 436 Principles of Biogeochemistry (3) Prerequisite: MATH120 or MATH140; or must have completed MATH220. And (GEOL100 or GEOL120); and GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136). Restriction: Non-degree-seeking students require the permission of the instructor. Also offered as: GEOL436. Credit only granted for: GEOL436 or AOSC436. An introduction to the basic principles of biogeochemistry including aspects of organic geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.

AOSC 437 Global Climate Change: Past and Present (3) Prerequisite: MATH115 or MATH140; and (GEOL100 or GEOL120); and (CHEM131 or CHEM135); and (CHEM132 or CHEM136). Restriction: Non-degree seeking students require permission of the instructor. Also offered as: GEOL437. A highlight to the fact that global climate change is part of the Earth's past as well as of its present and future. Changes in climate that have occurred in the geologic past can be viewed as the Earth's natural climate variability. These changes are different from, though could be linked with, historical and present anthropogenically-induced climate change. We will discuss the modern climate system, the factors capable of forcing climate change on various time scales, the geologic proxies of past climate change and what these proxies tell us. Finally, we will compare and contrast past climate change with what is understood (and not understood) about modern climate change.

AOSC 458 Advanced Topics in Atmospheric and Oceanic Science (1-4) Repeatable to 12 credits. Special topics in atmospheric and oceanic science are given intensive study. The topic of concentration varies, from semester to semester and depends on student and faculty interests. Often, specialists from other institutions are invited to the campus on a visiting lectureship basis to conduct the course.

AOSC 470 Synoptic Meteorology (3) Prerequisite: Minimum grade of C- in AOSC431 and AOSC432. Credit only granted for: AOSC470, AOSC600, or METO600. Atmospheric properties and observations, meteorological analysis and charts, operational numerical forecasts. Application of quasigeostrophic theory, baroclinic instability, midlatitiude and mesoscale weather systems. Tropical meteorology. Weather forecasting using numerical and statistical models. Prediction of weather phenomena on the global, syoptic, meso, and local scales. Analysis of surface and upper air data; Norwegian cyclone model; introduction to weather forecasting.

AOSC 472 Mesoscale Meteorology (3) Prerequisite: AOSC432, AOSC600, AOSC610, or AOSC470. Restriction: Non-degree-seeking students require the permission of the instructor. Also offered as: AOSC602. Credit only granted for: AOSC472 or AOSC602. An introduction to mesoscale meteorology including the topics of mesoscale approximations, aspects of fronts and frontogenesis theory, piecewise potential vorticity inversion, mesoscale waves and instability, orographic mesoscale phenomena, isolated convection, mesoscale convective systems, and tropical cyclones.

AOSC 493 Senior Research Project I (3) Prerequisite: Permission of CMNS-Atmospheric & Oceanic Science department. Restriction: Must be in Atmospheric and Oceanic Science program. Or must not be in Atmospheric and Oceanic Science program; and permission of instructor. Technical writing and oral presentation skills. Planning, writing, and presenting a plan for research in the geosciences.

AOSC 494 Atmospheric and Oceanic Science Seminar (1) Prerequisite: Minimum grade of C- in AOSC431 and AOSC432. Exposure to a wide range of contemporary topics in atmospheric, oceanic, and climate sciences, to foster research interests and promote critical thinking through the weekly AOSC departmental seminar series.

AOSC 498 Senior Research Project II (3) Prerequisite: AOSC493. The project will be based on the research or development plan created in AOSC493. It may be completed with the approval of a faculty advisor in conjunction with an internship. Final written thesis and oral defense will be expected.

AOSC 499 Special Problems in Atmospheric Science (1-3) Prerequisite: Permission of CMNS-Atmospheric & Oceanic Science department. Repeatable to 6 credits. Formerly: METO499. Research or special study in the field of meteorology and the atmospheric and oceanic sciences.

ARAB -- Arabic

ARAB 101 Elementary Arabic I (3) Introduction to modern standard Arabic in both its spoken and written form. Equal emphasis on all four skill areas: speaking, listening, reading, and writing.

ARAB 104 Elementary Modern Standard Arabic I-II (6) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a fluent/native speaker of Arabic. An intensive course focusing on developing functional proficiency in the standard Arabic language, both written and formal spoken. Begins with script and phonology, and develops into a limited range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

ARAB 105 Elementary Modern Standard Arabic III-IV (6) Prerequisite: ARAB104; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a fluent/native speaker of Arabic. Continuation of ARAB104, developing further linguistic proficiency in Standard Arabic, both written and formal spoken. Covers an extended range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

ARAB 106 Elementary Egyptian Colloquial Arabic I (3) Prerequisite: Must have a basic knowledge of Arabic script. Recommended: Can be taken concurrently with an MSA course. Restriction: Must not be a fluent/native speaker of Arabic. Introduction to the widely spread spoken variety of Egyptian Arabic, covering the basic range of communicative and cultural situations where Modern Standard Arabic is not used. Emphasis is on developing the learners' listening and speaking skills in Egyptian Arabic, since colloquial Arabic dialects are mainly used in speech.

ARAB 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARAB 204 Intermediate Modern Standard Arabic I (6) Prerequisite: ARAB105; and must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a fluent/native speaker of Arabic. Covers topics related to contemporary Arabic society, literature and culture in standard written and formal spoken Arabic. Acquisition of more complex grammatical structures, expanding vocabulary, and reading, to develop a better understanding of the formal aspects of using MSA.

ARAB 205 Intermediate Modern Standard Arabic II (6) Prerequisite: ARAB204; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a fluent/native

speaker of Arabic. Continuation of ARAB204, with exposure to a wide range of Arabic texts from different domains. Focus on vocabulary, more complex grammatical forms, and a better understanding of the formal aspects of using MSA as well as the cultural aspects of using the language.

ARAB 206 Egyptian Colloquial Arabic I (3) Prerequisite: ARAB205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Arabic. Develops communicative skills and cultural knowledge in Egyptian Arabic. Focuses on various social interactions, work and school situations, as well as specifics of pronunciation and grammar of the Egyptian dialect. Designed for students who have completed two years of the regular Arabic sequence classes (104-105 and 204-205) or equivalent.

ARAB 207 Egyptian Colloquial Arabic II (3) Prerequisite: ARAB206; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a fluent/native speaker of Arabic. Further develops communicative skills and cultural knowledge in Egyptian Arabic, extending range of contexts and types of social interaction. Focuses on various aspects of Egyptian popular culture.

ARAB 210 Elementary Levantine Arabic III (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Emphasis on developing listening and speaking skills in Levantine Arabic, since colloquial dialects are mainly used in speech. Covers family, school, shopping, local culture and general interaction. Some reading in Arabic.

ARAB 211 Elementary Levantine Arabic IV (3) Prerequisite: ARAB210; or permission of ARHU-School of Languages, Literatures, and Cultures department. Emphasis on developing listening and speaking skills in Levantine Arabic. Covers conversational needs in everyday situations such as introductions, at hotels, at the doctor's office, at social get-togethers, etc. Some reading in Arabic.

ARAB 251 Image of Women in Arabic Cinema (3) Prerequisite: Knowledge of Arabic is desirable but not required. Arabic Cinema as socio-cultural discourse and representation of women in cinema as a way to create national identity. Taught in English.

ARAB 253 The Arabian Nights and the Art of Storytelling (3) Credit only granted for: ARAB 298B or ARAB253. Formerly: ARAB298B. One Thousand and One Nights (Arabic Kitab alf laylah wa laylah; English The Arabian Nights) is a collection of stories and folk tales compiled in Arabic during the Islamic Golden Age, and explores how this text has shaped Western perceptions of the Arabic-Islamic world as well as its impact on the literary production of similar works in Europe and the Middle East. Taught in English.

ARAB 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARAB 282 The Arab-Israeli Conflict through Readings in Translation (3) Literary works by both Arab and Jewish authors depicting the impact of the conflict on society and individuals. In English.

ARAB 298 Special Topics in Arabic Studies (1-3) Repeatable to 9 credits if content differs. Language and content to be announced when course is offered.

ARAB 304 Advanced Modern Standard Arabic I (3) Prerequisite: ARAB205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a

fluent/native speaker of Arabic. Formerly: ARAB301. Advanced grammar, reading, writing, speaking in Arabic; study of contemporary Arabic society, politics, and culture.

ARAB 305 Advanced Modern Standard Arabic II (3) Prerequisite: ARAB304; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a fluent/native speaker of Arabic. Further advanced grammar, reading, writing, speaking in Arabic; study of current issues within the Arab World.

ARAB 310 Intermediate Levantine Arabic I (3) Prerequisite: ARAB211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Focuses on speaking and listening skills in Levantine Arabic, enriching vocabulary, introducing more complex grammatical forms and structures. Range of communicative contexts. Some reading in Arabic.

ARAB 315 Intensive Advanced Arabic I (6) Prerequisite: ARAB205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not have completed ARAB304. Intensive training in written and spoken Arabic at the Advanced-low level of proficiency. Additional intensive training in effective listening and reading skills. Substantial cultural component exploring traditions and customs of the Middle East in addition to current social issues.

ARAB 316 Intensive Advanced Arabic II (6) Prerequisite: ARAB304 or ARAB315; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not have completed ARAB305. Credit only granted for: ARAB305 or ARAB316. Intensive training in written and spoken Arabic at the Advanced-mid level of proficiency. Additional training in effective listening and reading skills. Substantial cultural component exploring traditions and customs of the Middle East in addition to current social issues.

ARAB 321 Arabic Media (3) Prerequisite: ARAB305; or permission of instructor. Examines the role of the Arabic media in shaping public opinion and influencing relations between the Arab world and the non-Arab world. Focus on content and acquistion of Modern Standard Arabic. Taught in Arabic.

ARAB 341 Filming War Zones: Representations of Wars in Iraq and Chechnya (3) Also offered as: FILM341. Credit only granted for: ARAB341 or FILM341. Comparative study of ideological and cultural discourses in war films covering military conflicts in Iraq and Chechnya in late 20th-early 21st centuries. Materials include American, Middle Eastern, and Russian feature films and documentaries; theories of propaganda, ideology and popular culture. Taught in English.

ARAB 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARAB 386 Experiential Learning (3-6) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department. Pre-professional experience in research, analysis and writing in a work setting. Project proposal approved by faculty and internship sponsor. Junior standing.

ARAB 398 Special Topics in Arabic Studies (3) Prerequisite: ARAB304. Repeatable to 6 credits if content differs. In-depth study of a particular aspect of Arabic culture, literature, and language. Specific topic to be announced when offered. Taught in Arabic.

ARAB 399 Independent Study In Arabic (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Research and writing or specific readings on a topic

selected by the student and supervised by a faculty member on the Department of Arabic Studies. To be planned during semester preceding registration.

ARAB 401 Readings in Arabic Literature (3) Prerequisite: ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Arabic. A survey of Modern Arabic literature is given through a range of selected texts. Texts are studied as literature with constant reference to the social, cultural and political contexts in which they were written. Taught in Arabic.

ARAB 402 Arabic English Translation (3) Prerequisite: ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Arabic. In-depth practicum in translation from Arabic to English. Exploration of the complexities of translation as an exercise of textual interpretation and linguistic transformation.

ARAB 489 Special Topics in Arabic Studies (3) Prerequisite: ARAB305; or permission of ARHU-School of Languages, Literatures, and Cultures department. In-depth study of particular aspect of Arabic language and culture. Specific topics to be announced when course is offered. Taught in Arabic.

ARAB 499 Special Topics in Arabic Studies (3) Repeatable to 6 credits if content differs. In-depth study of particular aspect of Arabic culture, literature and language. Specific topic to be announced when course is offered.

ARCH -- Architecture

ARCH 101 Foundations in Architecture (1) Prerequisite: UNIV100; or permission of ARCH-Architecture Program. Restriction: Freshman standing. To pursue any field of knowledge one must first begin with the basics. By learning the "language" of architecture one can explore the foundations of the architectural profession through interactive and experiential learning.

ARCH 150 Discovering Architecture (3) Prerequisite: Permission of ARCH-Architecture Program. Introduction to architecture and design studio education. The course examines fundamental design principles and skills related to architecture. The design studio projects apply ideas and concepts introduced in lectures, readings and on site visits. The design studio projects are both analytic and synthetic in nature. The explicit goals of the course are: To explore the discipline of architecture; To promote visual thinking and representational skills; To develop analytic design thinking skills; To learn some of the conventions of architectural representation; To enhance cultural awareness of architecture and design.

ARCH 170 Design Thinking and Architecture (3) Examines conceptual, perceptual, behavioral, and technical aspects of the built environment, and methods of analysis, problem-solving, and design implementation.

ARCH 171 Design Thinking and Making in Architecture (3) Restriction: Must be in a major in ARCH-Architecture Program. Examines iterative design processes and critical thinking skills through active learning and design thinking methodologies to solve problems and apply design as a lens of inquiry and exploration. Students will understand Design Thinking through interactive and experiential learning.

ARCH 200 Design Media and Representation I (3) Restriction: Must be in a major in ARCH-Architecture Program. Study of architectural representation in physical and digital design media. Examine

visual literacy and visual communications through applied drawing, modeling and visual making to explore the role of design media and representation in design and design thinking.

ARCH 201 Elements and Principles of Architecture (1) Restriction: Must be in a major in ARCH-Architecture Program. Survey of fundamental elements and principals of architecture and architectural education. Frames study of architecture as a profession, discipline and critical practice.

ARCH 223 History of Non-Western Architecture (3) Survey of non-western architectural history, including prehistoric and vernacular; ancient civilizations and the Indus valley; the Islamic world; Hindu and Buddhist traditions of Asia; and pre-European Africa and the Americas.

ARCH 224 The Ancient Roman City: Pompeii and Beyond (3) Credit only granted for: ARCH224 or HONR208S. Study of daily life in the ancient Roman world seen through the architecture of Pompeii and neighboring cities.

ARCH 225 History of World Architecture I (3) Pre-1500 World Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and cultural production through architecture

ARCH 226 History of World Architecture II (3) Post-1500 - History of Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and building innovation in architecture

ARCH 227 History of World Architecture III (3) Restriction: Sophomore standing or higher. Survey of architectural history from 1800 to present.

ARCH 242 Basic Architectural Drawing (3) Prerequisite: ARCH170; or ARCH171. Study of drawing as a learned skill with emphasis on observation, documentation, analysis, and synthesis. This introductory course immerses students in visual thinking and learning how to see through drawing. The course explores the traditional conventions of architectural drawing (orthographics, isometrics, axonometrics, and linear perspective) as well as abstract and pictorial visualization techniques primarily through freehand drawing and sketching.

ARCH 270 Design in Practice (3) Case studies and hands-on design projects ranging in scale from a product to a building to give students insight into the process by which architects work both individually and collaboratively to put disciplinary knowledge and expertise into practice to shape our built environment.

ARCH 271 People, Planet, and Profit: Building Sustainable Places (3) An introduction to the four disciplines represented in the School: architecture and urban design, community planning, historic preservation, and real estate development, that work to create a more sustainable environment for the future to create a more sustainable environment for the future using our interpretation of the quadruple bottom line: socio-cultural, economic, environmental, and design sustainability. Students will be provided with an understanding of the fundamental scholarship and processes of each of these disciplines and examine the intersections between them. Additionally, they will learn by applying the approaches of the four disciplines through a series of field studies.

ARCH 288 Selected Topics in Sustainability (3) Restriction: Must be in a major in ARCH-Architecture Program. Repeatable to 6 credits. Selected Topics in Architectural Sustainability

ARCH 289 Independent Studies in Architectural Sustainability (1-4) Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Independent Studies in Architectural Sustainability. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.

ARCH 300 Design Media and Representation II (3) Prerequisite: ARCH200; or permission of ARCH-Architecture Program. Restriction: Must be in a major in ARCH-Architecture Program. Study of architectural representation in physical and digital design media. Examine visual communications and speculative visual studies through applied drawing, modeling and making to explore expanded roles of representation in design and design thinking.

ARCH 343 Intermediate Architectural Drawing (3) Prerequisite: ARCH242; or permission of ARCH-Architecture Program. Development of media technique (including color pencil, pastel, graphite, ink, and watercolor) as vehicles for investigating color, composition, and abstraction. Exploration of historical and contemporary issues of representation in architectural visual communication.

ARCH 386 Experiential Learning (3-6) Restriction: Must have learning proposal approved by faculty sponsor and student's internship sponsor; and sophomore standing or higher; and permission of ARCH-Architecture Program. Learning experience tied to internship of specified duration with targeted learning outcomes.

ARCH 400 Architecture Design Studio I (6) Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program. Introduction to architectural design with particular emphasis on conventions and principles of architecture, visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses.

ARCH 401 Architecture Design Studio II (6) Prerequisite: Minimum grade of C- in ARCH400. Restriction: Must be in Architecture (B.S.) program. Continuation of ARCH 400 with introduction to building typology, urban and contextual issues, design of the vertical surface, and architectural interiors.

ARCH 402 Architecture Design Studio III (6) Prerequisite: Minimum grade of C- in ARCH401. Restriction: Must be in Architecture (B.S.) program. Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical.

ARCH 403 Architecture Design Studio IV (6) Prerequisite: Minimum grade of C- in ARCH402. Restriction: Must be in Architecture (B.S.) program. Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.

ARCH 404 Graduate Architecture Design Studio I (6) Recommended: For 3 1/2 year graduate students only. Restriction: Must be in Architecture (Master's) program. Introduction to architectural design with particular emphasis on conventions and principles of architecture , visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses. Offered fall only.

ARCH 405 Graduate Architecture Design Studio II (6) Prerequisite: Minimum grade of C- in ARCH404. Restriction: Must be in Architecture (Master's) program. Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical. Offered spring only.

ARCH 406 Graduate Architecture Design Studio III (6) Prerequisite: Minimum grade of C- in ARCH405. Restriction: Must be in Architecture (Master's) program. Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.

ARCH 407 Graduate Architecture Design IV (6) Prerequisite: Minimum grade of C- in ARCH406. Restriction: Must be in Architecture (Master's) program. Studio problems and theories concentrating on urbanism and urban design techniques. Issues and sites range from high-density urban in-fill to suburban and greenfield development in American and other contexts. Studio theories explore such topics as Contextualism, Neo-Traditional design, Transit Oriented Development, density, sustainable development, building typology, and street design.

ARCH 408 Special Topics Architecture Design Studio (6) Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program. Repeatable to 12 credits if content differs. Additional information: Elective Architecture Design Studio that may be taken for repeat or advanced credit for arch400 arch401 arch402 arch403 and/or an additional design studio. Design Studio course to examine topical problems in architecture and urban design.

ARCH 410 Architecture Technology I (4) Prerequisite: MATH120 or MATH140; or must have completed MATH220. And PHYS121; and (GEOG140, GEOG123, GEOL120, AOSC123, GEOL123, or BSCI205). Corequisite: ARCH400. Restriction: Must be in Architecture (B.S.) program. First course in a four course sequence which develops the knowledge and skills of architectural technology. Addresses climate, human responses to climate, available materials, topography and impact on culture. Principles of assembly, basic structural principles and philosophies of construction.

ARCH 411 Technology II (4) Prerequisite: ARCH410. Corequisite: ARCH401. Restriction: Must be in Architecture (B.S.) program. Second course in a four course sequence. Building construction processes and terminology; use and performance characteristics of primary building materials; principles of structural behavior related to the building systems; equilibrium and stability, stiffness and strength, types of stress, distribution of force and stress, resolution of forces, reactions, bending moments, shear, deflection, buckling.

ARCH 412 Architecture Technology III (4) Prerequisite: Minimum grade of C- in ARCH411. Corequisite: ARCH402. Restriction: Must be in Architecture (B.S.) program. Third course in a four course sequence. Design of steel, timber, and reinforced concrete elements and subsystems; analysis of architectural building systems. Introduction to design for both natural and man-made hazards.

ARCH 413 Architecture Technology IV (4) Prerequisite: ARCH412. Corequisite: ARCH403. Restriction: Must be in Architecture (B.S.) program. Final course in a four course sequence. Theory,

quantification, and architectural design applications for HVAC, water systems, fire protection electrical systems, illumination, signal equipment, and transportation systems.

ARCH 418 Selected Topics in Architectural Technology (3) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Selected Topics in Architectural Technology

ARCH 419 Independent Studies in Architectural Technology (1-4) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.

ARCH 420 History of American Architecture (3) Prerequisite: ARCH221; or permission of ARCH-Architecture Program. American architecture from the late 17th to the 21st century.

ARCH 422 History of Greek Architecture (3) Prerequisite: ARCH221; or permission of ARCH-Architecture Program. Survey of Greek architecture from 750-100 B.C.

ARCH 423 History of Roman Architecture (3) Prerequisite: Permission of ARCH-Architecture Program. Survey of Roman architecture from 500 B.C. To A.D. 325.

ARCH 425 History of Architecture I (3) Restriction: Permission of ARCH-Architecture Program. Credit only granted for: ARCH225 or ARCH425. Additional information: Graduate architecture history course requires additional recitation section and additional coursework tied to survey lectures. Pre-1500 World Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and cultural production through architecture. Structured to nurture critical thinking and visually literacy with regard to the worldwide legacy of architecture. The work in the course will involve the evaluation of sources and arguments in reading architectural history. Architecture will be framed relative to ways of thinking, religious beliefs, cultural heritage, and cultural values.

ARCH 426 History of Architecture II (3) Restriction: Permission of ARCH-Architecture Program. Credit only granted for: ARCH226 or ARCH426. Additional information: Graduate architecture history course requires additional recitation section and additional coursework tied to survey lectures. Post-1500 - History of Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and building innovation in architecture. Structured to nurture critical thinking and visually literacy with regard to the worldwide legacy of architecture. The work in the course will involve the evaluation of sources and arguments in reading architectural history. Architecture will be framed relative to ways of thinking, religious beliefs, cultural heritage, and cultural values.

ARCH 427 Theories of Architecture (3) Prerequisite: ARCH426; or permission of ARCH-Architecture Program. Restriction: Must be in Architecture (B.S.) program. Survey of architectural theories - theories of architectural design, representation and urban design from antiquity to the present day.

ARCH 428 Selected Topics in Architectural History (1-4) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Selected Topics in Architectural History

ARCH 429 Independent Studies in Architectural History (1-4) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.

ARCH 430 Measuring Sustainability in Architecture (3) Credit only granted for: ARCH430 or ARCH418M. Formerly: ARCH418M. Studies metrics of sustainability as included in rating standards, including LEED. All students will take the LEED GA test.

ARCH 433 History of Renaissance Architecture (3) Prerequisite: ARCH221; or permission of ARCH-Architecture Program. Renaissance architectural principles and trends in the 15th and 16th centuries and their modifications in the Baroque period.

ARCH 434 History of Modern Architecture (3) Prerequisite: ARCH221; or permission of ARCH-Architecture Program. Architectural trends and principles from 1750 to the present, with emphasis on developments since the mid-19th century.

ARCH 435 History of Contemporary Architecture (3) Prerequisite: ARCH221; or permission of ARCH-Architecture Program. Architectural history from World War II to the present.

ARCH 443 Visual Communication For Architects (3) Corequisite: ARCH400. Restriction: Must be in Architecture (Master's) program; and must be in the 3.5 year M. ARCH program. Investigation of the relationship between drawing from life and architectural drawing, the conventions of architectural drawing and the role of architectural drawing as a means to develop, communicate, and generate architectural ideas.

ARCH 445 Visual Analysis of Architecture (3) Prerequisite: ARCH400; or permission of ARCH-Architecture Program. Restriction: Must be in Architecture (B.S.) program. Study of visual principles of architectural and urban precedents through graphic analysis. Exercises include on-site observation, documentation and analysis. Focuses on the development of an architect's sketchbook as a tool for life-long learning.

ARCH 448 Selected Topics in Visual Studies in Architecture (3) Restriction: Permission of ARCH-Architecture Program; and must be in a major in ARCH-Architecture Program. Repeatable to 6 credits if content differs. Selected Topics in Visual Studies in Architecture

ARCH 449 Independent Studies in Visual Studies in Architecture (1-4) Restriction: Permission of ARCH-Architecture Program; and must be in a major in ARCH-Architecture Program. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.

ARCH 456 Great Cities (3) Prerequisite: Permission of ARCH-Architecture Program. Case studies from a selection of the great cities of the world.

ARCH 458 Selected Topics in Urban Design (3) Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Selected Topics in Urban Design

ARCH 459 Independent Studies in Urban Design (1-4) Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.

ARCH 460 Site Analysis and Design (3) Restriction: Permission of ARCH-Architecture Program. Principles and methods of site analysis; the influence of natural and man-made site factors on site design and architectural form.

ARCH 461 Sustainability in Architecture (3) Restriction: Permission of ARCH-Architecture Program. Credit only granted for: ARCH418S or ARCH461. Formerly: ARCH418S. Strategies of sustainability as related to the broader context of architectural problem solving.

ARCH 462 Methods & Materials of Building Construction (3) Restriction: Must be in a major in ARCH-Architecture Program; or must be in Construction Project Management Minor. Credit only granted for: ARCH410 or ARCH462. Building Construction methods and materials are examined through case studies to explore the means and techniques applied to the material execution of buildings and BIM. Focus on an understanding of the organization of the design and construction process and awareness of building and zoning codes, material systems and types.

ARCH 463 Sustainable Systems in Architecture (3) Restriction: Must be in a major in ARCH-Architecture Program. Sustainable systems in architecture examines the nature of the global problem, environmental economics, understanding the local environment, bioclimatic design, solar control and shading, solar access zoning, residential scale energy design issues, commercial scale energy design issues, and urban scale energy design issues.

ARCH 464 Architectural Structures I (3) Restriction: Must be in a major in ARCH-Architecture Program. Credit only granted for: ARCH411 or ARCH464. This course covers the basic principles of architectural structures, including the influence of geometric, sectional, and material properties related to flexure and shear in beam and framed systems; vector mechanics with application to analysis of trusses, catenaries, and arches; diagrammatic analysis of beams for bending moment, shear, and deflection as well as the study of structural framing systems for vertical and lateral loads.

ARCH 465 Architectural Structures II (3) Restriction: Must be in a major in ARCH-Architecture Program. Credit only granted for: ARCH412 or ARCH465. The basic principles of elastic behavior for different materials such as wood, steel, concrete, and composite materials and compares the properties and applications of materials generally will be covered. It investigates cross sectional stress and strain behavior in flexure and in shear, and torsion as well as the stability of beams and columns. The qualitative behavior of combined stresses and fracture in materials is also covered.

ARCH 466 Environmental Systems in Architecture (3) Restriction: Must be in a major in ARCH-Architecture Program. Credit only granted for: ARCH413 or ARCH466. Environmental systems in architecture presents the theory, quantification, and architectural design implications for heating ventilating and air conditioning, water and waste, fire protection, electricity, illumination, acoustics, and vertical transportation.

ARCH 467 Integrated Project Delivery (3) Restriction: Must be in a major in ARCH-Architecture Program; or must be in Construction Project Management Minor. Integrated Project Delivery is examined from design to implementation through an exploration of building construction, architectural design and construction management perspectives.

ARCH 470 Computer Applications in Architecture (3) Prerequisite: ARCH400; or permission of ARCH-Architecture Program. Restriction: Must be in Architecture (B.S.) program. Introduction to computer utilization, with emphasis on architectural applications.

ARCH 472 Building Information Modeling Communication and Collaboration (3) Restriction: Must be in a major in ARCH-Architecture Program; or must be in the Construction Project Management Minor. Credit only granted for: ARCH678I or ARCH472. Formerly: ARCH678I. Building Information Modeling is explored as pertains to collaboration and communication in the design and construction of buildings and building systems. Practical and empirical learning using BIM software and case studies of real world projects and construction scenarios.

ARCH 474 Integrated Education in Architecture NAAB/IDP (1) Restriction: Must be in a major in ARCH-Architecture Program. Examine National Architectural Accrediting Board (NAAB) student performance criteria in the context of architectural education. Contextualize NAAB accredited curricula and examine the relationship to graduate study and professional practice, including the Intern Development Program (IDP) of the National Council of Architectural Registration Boards (NCARB).

ARCH 478 Selected Topics in Architecture (1-4) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Selected Topics in Architecture

ARCH 479 Independent Studies in Architecture (1-4) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.

ARCH 481 The Architect in Archaeology (3) Prerequisite: Permission of ARCH-Architecture Program. The role of the architect in field archaeology and the analysis of excavating, recording, and publishing selected archaeological expeditions.

ARCH 482 The Archaeology of Roman and Byzantine Palestine (3) Archaeological sites in Palestine (Israel and Jordan) from the reign of Herod the Great to the Moslem conquest.

ARCH 483 Field Archaeology (3) Prerequisite: Permission of ARCH-Architecture Program. Participation in field archaeology with an excavation officially recognized by proper authorities of local government.

ARCH 488 Selected Topics in Architectural Preservation (1-4) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Selected Topics in Architectural Preservation.

ARCH 489 Independent Studies in Architectural Preservation (1-4) Restriction: Permission of ARCH-Architecture Program. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.

AREC -- Agricultural and Resource Economics

AREC 200 The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy (3) The Chesapeake Bay is one of the most studied and monitored ecosystems in the world. To develop effective policies to restore this system to a healthier status requires integrating what we know about the biological and physical properties of the system with our understanding of the human dimension. Issues such as achieving nutrient reduction goals, restoring healthy blue crab and oyster fisheries in the bay will be used to demonstrate how economics interacts with science to guide policies that can be effective in achieving Bay restoration goals.

AREC 240 Introduction to Economics and the Environment (4) Credit only granted for: ECON200, AREC240, or AREC250. Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems. Public policy approaches to solutions and the costs and benefits of alternative solutions.

AREC 241 Environment, Economics and Policy (4) Credit only granted for: AREC240 or AREC241. Studies the relationship between the economy, environment and policy. Causes of modern environmental problems and policies to address them. Importance of production, consumption, externalities, property rights and public goods in environmental issues. Technological and incentive-based solutions to environmental problems.

AREC 250 Elements of Agricultural and Resource Economics (3) Credit only granted for: ECON200, AREC240 or AREC250. An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.

AREC 306 Farm Management and Sustainable Food Production (3) The organization and operation of farm businesses are explored through principles of management, financial analysis, production economics, marketing, and business planning. These farm management principles are presented in the context of a sustainable food production system.

AREC 326 Intermediate Applied Microeconomics (3) Prerequisite: ECON200 or AREC250; and ECON201. And MATH120, MATH140, or MATH130; or must have completed MATH220. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Agricultural and Resource Economics: Agribusiness). Credit only granted for: ECON306, ECON326, AREC489M, or AREC326. Formerly: AREC489M. Deepens and broadens your ability to apply rigorous economic analysis skills to a broad range of problems.

AREC 345 Global Poverty and Economic Development (3) This interdisciplinary course explores social and economic development around the world. Topics include geography, democratization, political instability and conflict, health and education, agricultural development, micro-entrepreneurship, and an introduction to impact evaluation methods used to evaluate the efficacy of public policy aimed at alleviating poverty.

AREC 365 World Hunger, Population, and Food Supplies (3) An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.

AREC 382 Computer-Based Analysis in Agricultural and Resource Economics (3) Prerequisite: STAT100, MATH107, or MATH111; or students who have taken courses with comparable content may contact the department. And AREC240, AREC250, or ECON200; or students who have taken courses with comparable content may contact the department. Credit only granted for: AREC182 or AREC382. Formerly: AREC182. Analysis of economic data using computer spreadsheets. Exercises include analyses of forest land shares, farmer willingness to pay, farm production planning, fisheries management, corn prices, and index numbers. Analyses features use of cell formulas, spreadsheet functions, Excel's Data Analysis Tool and Solver. This is a lab course featuring experimental learning.

AREC 386 Experiential Learning (3-6) Prerequisite: Permission of AGNR-Agricultural & Resource Economics department. Restriction: Junior standing or higher.

AREC 388 Honors Thesis Research (3-6) Restriction: Must be in the AGNR Honors program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

AREC 399 Special Problems (1-3) Repeatable to 6 credits if content differs. Concentrated reading and study in some phase of a problem in agricultural and/or natural resource economics.

AREC 404 Applied Price Analysis (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with comparable content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). An introduction to the economic analysis of price behavior, with applications to agricultural commodities. The use of price information in the decision-making process, the relation and supply and demand in determining price, and the relation of prices to grade, time, location, and stages of processing in the marketing system.

AREC 405 Economics of Production (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with comparable content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). The use and application of production economics in analysis of firm and policy decisions. Production functions, cost functions, multiple product and joint production, and production processes through time.

AREC 422 Econometric Applications in Agricultural and Natural Resource Economics (3) Prerequisite: ECON326; or AREC326; or ECON306. Restriction: Must be in a major within the AGNR-Agricultural & Resource Economics department. Credit only granted for: ECON422, AREC422, or AREC489F. Formerly: AREC489F. The main goal of this course is to equip students with valuable skills in econometricsand data analysis. Specifically, the main goal of the course is to teach you the basics ofthe theory and practice of econometrics, and to give you experience in estimatingeconometric models with actual data.

AREC 425 Economics of Food Sector (3) Corequisite: ECON306 or ECON326; or students who have taken courses with comparable content may contact the department. Credit only granted for: AREC425 or AREC489B. Formerly: AREC489B. Economic analysis of food sector issues, including food safety, agricultural biotechnology, and coordination mechanisms in the food supply chain.

AREC 427 Economics of Commodity Marketing Systems (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with comparable content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). Basic economic theory as applied to the marketing of agricultural commodities. Current developments affecting market structure including contractual arrangements, cooperative marketing, vertical integration, and governmental policies.

AREC 430 Introduction to Agricultural and Resource Law (3) Prerequisite: ECON326, ECON306, or AREC326. Restriction: Must be in a major within the AGNR-Agricultural & Resource Economics department. Credit only granted for: AREC430 or AREC489K. Formerly: AREC489K. Survey of law with emphasis on problems and applications related to agricultural and natural resource economics. The course emphasizes strategies for managing legal risk arising from ownership, management, and use of agricultural resources. Students will get practical information to utilize in personal or professional settings. Contract law, constitutional law, tort law, property law, real estate transactions, business organization, estate planning, and debtor.

AREC 433 Food and Agricultural Policy (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with comparable content may contact the department. Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.

AREC 435 Commodity Futures and Options (3) Prerequisite: (BMGT230; or ECON321); and (ECON306; or ECON326). Or students who have taken courses with comparable content may contact the department. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Polcy in Economic Development (#AG03). The economics and institutional features of commodity futures and options markets. Students will develop a basic understanding of the underlying price relationships between cash and futures markets and will apply this information to business risk management decision making.

AREC 445 Agricultural Development, Population Growth and the Environment (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with comparable content may contact the department. Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.

AREC 446 Sustainable Economic Development (3) Credit only granted for: AREC446 or AREC489G. Formerly: AREC489G. Examine why socially equitable and environmentally sustainable economic growth is difficult to achieve. It explores the interactive dynamics of environmental degradation, human capital, inequality and institutions. Emphasis is on the role of market imperfections and political failure in explaining the persistence of extractive economic institutions that hinder sustainable development.

AREC 453 Natural Resources and Public Policy (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with comparable content may contact the department. Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.

AREC 454 The Economics of Climate Change (3) Prerequisite: ECON326 or ECON306. Restriction: Must be in one of the following programs (Agricultural and Resource Economics; Environmental Science & Policy-Env Economics; Agricultural and Resource Economics: Agribusiness) ; or must be minors in Agribusiness Economics (#AG01), Environmental Economics and Policy (#AG02), or Resource and Agricultural Policy in Economic Development (#AG03). Credit only granted for: AREC454 or AREC489C. Formerly: AREC489C. The role of economics in the formation of climate policy; basic

concepts of environmental economics including efficiency, externalities, and policy instruments; economic models of intertemporal decisions and decision making in the face of uncertainty. Applied economic analysis of specific issues and current policy initiatives.

AREC 455 Economics of Land Use (3) Prerequisite: ECON326 or ECON306; or students who have taken courses with comparable content may contact the department. Fundamentals of location theory. Microeconomics of land use decisions, including determination of rent and hedonic pricing models. Impacts of government decisions on land use, including regulation (e.g., zoning), incentives (transferable development rights), provision of public services, and infrastructure investments. Impacts of land use on environmental quality, including issues relating to sprawl, agricultural land preservation, and other topics of special interest.

AREC 456 Energy and Environmental Economics (3) Prerequisite: ECON326 or ECON306. Restriction: Must be in a major within the AGNR-Agricultural & Resource Economics department. Credit only granted for: AREC456 or AREC489J. Formerly: AREC489J. Economic theory and empirical methods are used to study problems of energy, the environment, and the economy. It examines the extraction, production, and use of energy and market institutions and regulatory approaches used to correct market failures. Topics covered include: oil and natural gas markets, management and design of electricity markets, renewable energy, non-market valuation , climate change, and transportation policies.

AREC 489 Special Topics in Agricultural and Resources Economics (3) Repeatable to 9 credits.

ARHU -- Arts and Humanities

ARHU 158 Explorations in Arts and Humanities (3) Restriction: Must be in a major in ARHU-College of Arts & Humanities; and freshman standing. A first-year innovation and research experience. It introduces multiple disciplinary perspectives within a given theme to understand human beings, cultures and societies. Students will learn about key questions, concepts, methods, and practices within ARHU and will engage in original humanistic research while working with campus and college tools and resources.

ARHU 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARHU 275 Writing to be Seen: Scriptwriting for Theatre, Film, and Television (3) Also offered as: ENGL275. Credit only granted for: ENGL278D, ENGL275, ARHU319B or ARHU275. Formerly: ENGL278D; ARHU319B. Introduction to theory and practice of scriptwriting with opportunity to read, view, evaluate, write, and revise texts meant to be performed for spectators. Practice writing for the stage, film and television, with emphasis on critical reading of textual and visual literary models. Theory and scholarship teaching opportunities and advantages of each format. Application of scholarship to analysis and critique of plays and texts successful across two different formats. Examination of selected scripts, performances, and film and television clips as models for students' own creative work. Frequent writing exercises and use of workshop format.

ARHU 286 Experiential Learning (3-6) Prerequisite: Permission of ARHU-College of Arts & Humanities. Restriction: Minimum cumulative GPA of 2.5; and must be in a major in ARHU-College of Arts & Humanities; and must have earned a minimum of 12 credits. Designed for ARHU students who wish to complete an internship in one of the academic fields covered within the College of Arts and Humanities. In addition to completing their required hours on site, students will be required to attend four

weekly seminars at the beginning of the semester to help develop their para-professional goals and understandings.

ARHU 298 Special Problems in Arts and Humanities (3) Repeatable to 6 credits if content differs.

ARHU 299 Studies in Humanities Technology (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Selected topics in the use of Information Technology in the Humanities.

ARHU 308 Critical Eras: An Interdisciplinary View (3) Repeatable to 6 credits if content differs. An interdisciplinary exploration of a critical period, ranging from a year to an era, stressing the relationship between different forms of human expression and the social milieu.

ARHU 309 Writers' House Colloquium: Creative Writing in Community (1-3) Prerequisite: Permission of ARHU-College of Arts & Humanities; and must be admitted to the Jimenez-Porter Writers' House. Repeatable to 6 credits if content differs. Colloquium designed to improve students' skills in literary and communication arts through lectures, workshop and discussions on the history and craft of writing across cultures. Topics include poetry and fiction in translation, and exploration of modes of critique, elements of craft of fiction and poetry, writing for different media, genre writing, writing for performance, screen or scriptwriting and creative non-fiction.

ARHU 318 Writers' House Colloquium: Creative Writing Across Languages and Cultures (1-3) Prerequisite: Permission of ARHU-College of Arts & Humanities; and must be admitted to the Jimenez-Porter Writers' House. Repeatable to 6 credits if content differs. Colloquium designed to improve students' skills in literary and communication arts through lectures and discussions on the history and craft of writing across cultures. Topics for the different versions of ARHU 318 include poetry, fiction, writing for different media, autobiography and memoir, scriptwriting, screenwriting, and community engagement projects.

ARHU 319 Writers' House Second Year Colloquium: Form and Theory of Creative Writing (1-3) Restriction: Must be in the Jimenez-Porter Writer's House program. Repeatable to 6 credits if content differs. Required course for Writers' House students pursuing the notation program. Offered in either poetry or imaginative prose writing. Students work at the intermediate level, refining creative writing skills through cross-cultural reading and writing exercises. As part of the course, students attend a series of lectures and readings given by professional writers.

ARHU 320 Writers' House Second Year Colloquium: Writing for Publication (3) Recommended: Completion of ARHU318 and ARHU319 recommended. Restriction: Currently enrolled in Writers' House or permission of program. Credit only granted for: ARHU319A or ARHU320. Formerly: ARHU319A. Students write, discuss and revise for multiple forms of publication: reading their own work at least once in public, sending work out for publication to literary journals, and producing a chapbook of high quality by end of semester.

ARHU 338 Undergraduate Teaching Assistantship in a Living Learning Program (1-3) Restriction: Sophomore standing or higher; and must be in an ARHU Living Learning Program or be a graduate of the program; and must have permission of the Living Learning Program to enroll. Repeatable to 6 credits if content differs. Offers exceptional students the opportunity to work closely with a faculty member and gain valuable experience. ARHU Living learning program UTAs also serve as peer mentors and program leaders. They assist with course planning, research, and student advising (as appropriate). We are also allowing for variable credit (1-3 cr hrs).

ARHU 350 Chilean Culture, Democracy, and Social Change (3) Credit only granted for: ARHU350, ARHU369C, CMLT498C, GVPT309F, HIST329N, HONR349C. Formerly: ARHU369C. Short term education abroad course offered in Summer term, in Santiago and Valparaiso, Chile. An exploration of both the conditions that led to the 1973 coup d'etat in Chile, and the complex legacy left by the following dictatorship, including competing economic philosophies that are underpinned by religious, historical, and ideological components. This course focuses on how the arts and literature continued to flourish during the dictatorship, and how they have played a continuing role in the country's recovery from its traumatic past.

ARHU 351 James Joyce's Dublin: A multi-media Odyssey (3) Credit only granted for: ARHU369I, ARHU351, ENGL369L, or HONR349L. Formerly: ARHU369I. Chapter by chapter analysis of the text with in situ tours to settings important to the book, and examination of the culture and circumstances from which it arose; review of the impact of Ulysses, and continuing controversies around the text. Multi-media explorations and creative projects will be included in course activities: collaborations on tumblr, and the use of such technologies as vine, instagram, twitter, etc., in an exploration of how our subjective experiences and the expressions they inspire are impacted by new technologies.

ARHU 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARHU 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-College of Arts & Humanities. Restriction: Junior standing or higher.

ARHU 398 Special Topics in Arts and Humanities (3) Repeatable to 9 credits if content differs. An in-depth exploration of thematic topics in Arts and Humanities.

ARHU 439 Interdisciplinary Studies in Arts and Humanities (3) Repeatable to 6 credits if content differs. An interdisciplinary exploration of chronological, geographical or thematic topics in Arts and Humanities.

ARHU 468 Peer Mentoring Program (1) Restriction: Sophomore standing or higher; and permission of ARHU-College of Arts & Humanities. Repeatable to 3 credits if content differs. A workshop for sophomore, junior or senior students who wish to serve as peer mentors helping first-year students to cope with the numerous issues which often arise in the transition to the university.

ARHU 486 Internship Practicum in Arts and Humanities (3-6) Prerequisite: Have completed previous internship at U of MD. Restriction: Must be in a major in ARHU-College of Arts & Humanities; and permission of ARHU-College of Arts & Humanities; and minimum cumulative GPA of 2.5; and must have earned a minimum of 60 credits; and completed 12 credits at U of MD. An internship intended for students who have already completed an internship for credit. ARHU486 must be a different experience from the internship students have already taken for credit. Generally students intern with a different company, but they may continue working for the same company if the job is significantly different. See ARHU internship coordinator for details.

ARHU 489 Advanced Internship Practicum in ARHU (3-6) Prerequisite: ARHU486. Restriction: Must be in a major in ARHU-College of Arts & Humanities; and minimum cumulative GPA of 2.5; and permission of instructor. Repeatable to 6 credits if content differs. Additional information: Course is designed to follow ARHU486. Designed for students who have already completed at least 2 upper level internship courses for academic credit. It is an advanced practicum to assist students in continuing to develop and hone their professional writing, presentation and analytical skills.

ARHU 498 Special Topics in Arts and Humanities (3) Repeatable to 6 credits if content differs.

ARMY -- Army

ARMY 101 Basic Military Science I (1) An exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie. Hands on experience in managerial operations and military techniques. Applied military customs and techniques through physical and mental training.

ARMY 102 Basic Military Science II (1) The continuation of the exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie.

ARMY 103 Basic Army Physical Fitness (2) Recommended: ARMY101. This course allows beginners to learn the basic Army Physical Fitness program. Through a series of rigorous progressive workouts, the student advances from novice status to meet the requirements of the Army Physical Fitness Test. Course content also introduces students to Army managerial skills and basic military tactics and techniques.

ARMY 104 Basic Army Physical Fitness II (2) Recommended: ARMY102. This course expands knowledge and proficiency in Basic Army Physical Fitness. Through a continued progressive, rigorous workouts, students improve individual fitness levels to exceed the Army Physical Fitness Test requirements. Course content also continues exploration of managerial skills and basic military tactics and techniques.

ARMY 105 Basic Military Science II (3) Restriction: Students must meet Officer candidate criteria to participate in field training. Credit only granted for: ARMY119 or ARMY105. Exploration of the Army Leadership Model through classroom instruction, leadership training and mentorship. Develops knowledge and competency in physical fitness through rigorous training and experiential leadership education through leadership laboratories.

ARMY 106 Basic Military Science I (3) Restriction: Students must meet Officer candidate criteria to participate in field training. Repeatable to 3 credits. Introduction to the personal challenges and competencies that are critical for effective leadership and communication. Develops knowledge and competency in physical fitness through rigorous training and experiential leadership education through leadership laboratories.

ARMY 119 ARMY ROTC INDEPENDENT STUDY (1) Restriction: Permission of UGST-Army ROTC. Repeatable to 2 credits. Credit only granted for: ARMY119 or ARMY105. Additional information: -Intended to impart the lecture curriculum of ARMY105 without the labs. Exploration of the Army Leadership Model through group discussion, leadership exercises and research.

ARMY 201 Army Leadership Development (3) Restriction: Sophomore standing or higher. This course is an intensive examination of the Army Leadership Model in practice. The model is compared to leadership styles and techniques from government and industry and the comparative effectiveness of each. Students form their own personal leadership styles.

ARMY 202 Military Leadership in Practice (3) Recommended: ARMY201. Restriction: Sophomore standing or higher. This course uses the case study method to examine the Army Leadership Model as applied to assigned missions in U.S. history. Students learn to evaluate and assimilate effective leadership

methods and techniques. Includes a laboratory period in which case studies are worked out and presented by individuals and groups.

ARMY 301 Advanced Military Leadership I (3) Prerequisite: Permission of UGST-Army ROTC. Restriction: Junior standing or higher. Reinforces understanding and application of Army leadership strategies, critical decision making methodologies, physical and mental fitness excellence. Includes a laboratory period in applied leadership, common military tasks and physical fitness.

ARMY 302 Advanced Military Leadership II (3) Prerequisite: Permission of UGST-Army ROTC. Restriction: Junior standing or higher. Prepares contracted students for certification at the Army National Advance Camp, a prerequisite for commissioning as an officer in the U.S. Army. Focus is directed to military tactics, squad and platoon drills, marksmanship, land navigation and fitness excellence. Includes a laboratory period in applied leadership skills as well as a three day field exercise.

ARMY 401 Advanced Military Leadership III (3) Prerequisite: Permission of UGST-Army ROTC. Restriction: Senior standing. Introduces contracted students to the study of Army structure, practices and processes exercised by Army Commanders and Staff in completing personnel, logistics, training and combat operations. Includes a laboratory in applied leadership skills and two field exercises.

ARMY 402 Advanced Military Leadership IV (3) Prerequisite: Permission of UGST-Army ROTC. Restriction: Senior standing. The military system and code of ethics in the military environment is studied. Topics include code of conduct during all forms of military operations, the Geneva Conventions and the ethical decision making process. Also includes a laboratory in applied leadership skills, fitness excellence and two field exercises.

ARSC -- Air Science

ARSC 059 Air Force Officer Lab (1) Restriction: Must be an AFROTC cadet. Repeatable to 10 credits if content differs. Formerly: ARSC159. Additional information: This course does not carry any credit toward any degree at the University. Offers Air Force ROTC cadet officer's practical experience in military leadership, management, organization, and customs. May include visits to military installations, weekend laboratories, and flight orientation.

ARSC 100 The USAF Today I (1) Corequisite: AFROTC cadets must also register for ARSC059. Freshman course for AFROTC cadets. Introduces students to the United States Air Force and encourages participation in Air Force Reserve Officer Training Corps. Featured topics include: overview of ROTC, special programs offered through ROTC, mission and organization of the Air Force, brief history of the Air Force, introduction to leadership and leadership related issues, Air Force Core Values, Air Force officer opportunities, and an introduction to communication studies. Leadership laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

ARSC 101 The USAF Today II (1) Corequisite: AFROTC cadets must also register for ARSC059. Freshman course for AFROTC. Continuation of ARSC100 for freshmen AFROTC cadets. Study of topics relating to the Air Forces and defense. Focuses on organizational structure and missions of the Air Force; officership and an introduction to both written and oral communication skills.

ARSC 200 The Development of Air Power I (1) Corequisite: AFROTC cadets must also register for ARSC059. Sophomore course for AFROTC cadets. Study of factors contributing to the development of

air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; introductory leadership; and assessment of communicative skills.

ARSC 201 The Development of Air Power II (1) Corequisite: AFROTC cadets must also register for ARSC059. Continuation of ARSC 200 for sophomore AFROTC cadets. The study of historical events, leaders, and technical developments which surrounded the growth of air power; the basics of leadership; environment of an Air Force officer; and concepts of ethical behavior.

ARSC 210 Field Training (2) Corequisite: AFROTC cadets must also register for ARSC059. Designed to train Air Force officer candidates in the skills of leadership, teamwork, officership, and the profession of arms. Successful completion is mandatory for all candidates in order to complete the AFROTC program and attain an Air Force commission.

ARSC 300 Management and Leadership I (3) Corequisite: AFROTC cadets must also register for ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Junior standing or higher. The study of leadership and management fundamentals, professional knowledge, Air Force doctrine, and written and oral communication skills. Case studies are used to examine leadership and management situations. This course will satisfy credit toward a minor in military studies.

ARSC 301 Management and Leadership II (3) Corequisite: AFROTC cadets must also register for ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Junior standing or higher. Continuation of ARSC300. Study of leadership and management skills and leadership ethics as well as written and oral communication skills required of Air Force officers. This course will satisfy credit towards a minor in military studies.

ARSC 399 Independent Study in Air and Space Power Implementation (1-3) Prerequisite: Permission of UGST-AFROTC-Air Science. Recommended: ARSC401 and ARSC400. Independent study to broaden understanding of the implementation of air and space power. Topics of research are selected by the student and instructor to focus the student on a particular aspect of air and space power implementation during a particular campaign or conflict.

ARSC 400 National Security Forces in Contemporary American Society I (3) Prerequisite: Permission of UGST-AFROTC-Air Science; or (ARSC300 or ARSC301). Corequisite: ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Senior standing. Study of American national security policy and processes to include information and implementation, impact of major national and international actors, and development of major policy issues. This course will satisfy credit towards a minor in military studies.

ARSC 401 National Security Forces in Contemporary American Society II (3) Prerequisite: ARSC300 or ARSC301; or permission of UGST-AFROTC-Air Science. Corequisite: ARSC059; or permission of UGST-AFROTC-Air Science. Restriction: Senior standing. This course examines various subjects including: military law/justice, preparation for active duty, and current issues affecting military professionalism. This course will satisfy credit towards a minor in military studies.

ARTH -- Art History & Archaeology

ARTH 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTH 200 Art and Society in Ancient and Medieval Europe and the Mediterranean (3) Examines the material culture and visual expressions of Mediterranean and European societies from early times until ca. 1300 CE, emphasizing the political, social, and religious context of the works studied, the relationships of the works to the societies that created them, and the interrelationship of these societies.

ARTH 201 Art and Society in the West from the Renaissance to the Present (3) Examines representative European and American works of art from the later Middle Ages to the present, highlighting the dynamic exchange between artistic and cultural traditions both within periods and across time.

ARTH 221 Color: Art, Science, and Culture (3) An interdisciplinary exploration of the intersections of art, science, and culture. Using research on human vision, neurobiology, and cognitive psychology, examines how vision works, why we see color, and how we respond to color. Investigates the cultural significance of color: how artists across time and cultures have had access to and used color; how cultures have created specific language to describe color; and how cultures have imbued color with profane, sacred, and/or symbolic meanings.

ARTH 250 Art and Society in the Ancient American World (3) Surveys major arts and architecture of the pre-Columbian world, including Mesoamerican and Andean cultures from the earliest known civilizations through European contact and conquest. Acquaints students with the monumental architecture, urban planning, painting, sculpture, and portable arts of the ancient Americas.

ARTH 255 Art and Society in the Modern American World (3) Explores the origins and evolution of art in the modern American world, from the late colonial era to the present, comparing major artistic movements and their historical contexts. Considers the diversity of art across Latin America and the United States, and the ways in which artworks mediate social, ethnic, political, and national identities.

ARTH 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Additional information: No more than 3 credits total of ARTH 269 or ARTH 289 can be used to satisfy the art history major requirement. Special topics course taken as part of an approved study abroad program.

ARTH 275 Art and Society in Africa (3) A comparative study of art and material culture from various regions of the African continent. Looking across ethnic and national boundaries, considers the many relevant political, social, and religious contexts.

ARTH 289 Special Topics in Art History and Archaeology (3) Repeatable to 6 credits if content differs. Additional information: No more than 3 credits total of ARTH 269 or ARTH 289 can be used to satisfy the art history major requirement. Selected topics in the visual arts to introduce students to the history of various modes of visual expression and communication.

ARTH 290 Art and Society in Asia (3) A comparative, interrelational study of the different visual arts and material cultures produced by societies in Asia. An examination of the historical traditions and forms in political, social, and religious contexts.

ARTH 292 Discovering Japan: How the Arts Shaped a Nation (3) Explores the origins and creation of Japan from ancient to contemporary times through East Asian and European exchange. Acquaints students with painting, sculpture, architecture, ceramics, gardens, and other art forms in relation to the various cultural contexts within which they were produced and used.

ARTH 300 Egyptian Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest. Emphasis on the pharaonic period.

ARTH 301 Aegean Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean empire.

ARTH 302 Greek Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

ARTH 303 Roman Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the earliest times through the third century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

ARTH 305 Archaeological Methods and Practice (3) Prerequisite: ANTH240, ARTH200, or CLAS180. Also offered as: ANTH305, CLAS305. Credit only granted for: ANTH305, ARTH305, or CLAS305. A team-taught, interdisciplinary course discussing theories, methods, and ethical issues in the practice of archaeology.

ARTH 307 Late Roman and Early Christian Art and Archaeology (3) Painting, sculpture, architecture, and the minor arts from the early third century through the sixth century A.D.

ARTH 313 Early Medieval Art (3) Painting, sculpture and architecture in Western Europe, ca. 500-1150.

ARTH 314 Gothic Art (3) Painting, sculpture and architecture in Western Europe, ca. 1150-1400.

ARTH 320 Fourteenth and Fifteenth-Century Northern European Art (3) The art of northern Europe with an emphasis on painting in the Netherlands and France.

ARTH 321 Sixteenth-Century Northern European Painting (3) Painting in France, Germany, England, and the Low Countries during the Renaissance and Reformation.

ARTH 323 Fifteenth-Century Italian Renaissance Art (3) Painting, sculpture, architecture, and the decorative arts of the fifteenth century in Italy.

ARTH 324 Sixteenth-Century Italian Renaissance Art (3) Painting, sculpture, architecture, and the decorative arts of the sixteenth century in Italy.

ARTH 330 Seventeenth-Century European Art (3) Painting, sculpture and architecture concentrating on Italy, Spain, France, and England.

ARTH 335 Seventeenth-Century Art in the Netherlands (3) Painting, sculpture and architecture in seventeenth-century Netherlands.

ARTH 345 Nineteenth-Century European Art to 1850 (3) Major trends from Neo-Classicism to Romanticism through an interdisciplinary perspective with an emphasis on historical context.

ARTH 346 Nineteenth-Century European Art from 1850 (3) Major trends from Realism and Impressionism to Symbolism, exploring the historical context, in which concepts of gender, class, and race are integral to the transformation of Western art.

ARTH 350 Twentieth-Century Art to 1945 (3) Prerequisite: ARTH201. Painting, sculpture, and architecture in Europe and America from the late nineteenth century to the end of World War II.

ARTH 351 Art Since 1945 (3) Prerequisite: ARTH201 or ARTH350. Visual art since 1945, with an emphasis on North America and Europe.

ARTH 357 History of Photography (3) Credit only granted for: ARTH357 or ARTH457. An exploration of the historical, social, aesthetic, and technological developments of the photographic medium and its relationship to other modes of visual representation in the creation of the modern world.

ARTH 359 Film as Art (3) Repeatable to 6 credits if content differs. The study of film as a visual art, from theoretical, cultural and aesthetic perspectives. Content varies by semester.

ARTH 360 History of American Art to 1876 (3) Painting, sculpture, architecture, and decorative arts in North America from the colonial period to 1876.

ARTH 361 American Art Since 1876 (3) Painting, sculpture, architecture, and the decorative arts in North America after 1876.

ARTH 362 Twentieth-Century African-American Art (3) Credit only granted for: ARTH362 or ARTH462. Formerly: ARTH462. Surveys and evaluates the art and visual culture of African Americans from 1900 to the present.

ARTH 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Additional information: No more than 6 credits of ARTH 369 can be used to satisfy the art history major requirements. Special topics course taken as part of an approved study abroad program.

ARTH 370 Latin American Art and Archaeology before 1500 (3) Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

ARTH 372 Modern Latin American Art to 1945 (3) Recommended: ARTH371. Restriction: Must not have completed ARTH389L during the following semester; Fall 2010, Fall 2011, or Fall 2012. Credit only granted for: ARTH372 or (ARTH389L in Fall 2010, Fall 2011, or Fall 2012). Formerly: ARTH389L in Fall semesters of 2010, 2011, 2012 only. Painting and sculpture in Latin America, with an emphasis on avant-garde movements in Mexico City, Havana, Buenos Aires, Sao Paulo, and Rio de Janeiro.

ARTH 373 Latin American and Latino Art Since 1945 (3) Recommended: ARTH371 and ARTH372. Restriction: Must not have completed ARTH389M in Spring 2011 or ARTH389L in Spring 2012. Credit only granted for: ARTH373 , ARTH389M in Spring 2011, or ARTH389L in Spring 2012. Formerly: ARTH389M in Spring 2011 and ARTH389L in Spring 2012. Visual arts and architecture in Latin America from local and international perspectives. Emphasis on late modernist and post-modern practices including geometric abstraction, pop, conceptualism, performance art, and installation art.

ARTH 376 Living Art of Africa (3) Art styles among the segmentary, centralized, and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

ARTH 377 Global African Art (3) Recommended: ARTH275. Restriction: Must not have completed ARTH489B in Fall 2007 or Fall 2011. Credit only granted for: ARTH377 or (ARTH489B in Fall 2007 or 2011). Formerly: ARTH489B in Fall 2007 and Fall 2011. A survey of the African-inflected arts around the world, focusing on such countries as Brazil, Haiti, Cuba and the United States

ARTH 378 Special Topics for Honors Students (3) Prerequisite: Must be admitted to art history honors; and permission of ARHU-Art History & Archaeology department. Restriction: Must be in Art History program. Repeatable to 6 credits. Writing of a research paper. With an instructor's permission work may be done in conjunction with a graduate colloquium or seminar.

ARTH 382 Art of Japan before 1500 (3) Credit only granted for: ARTH382 or ARTH384. Formerly: ARTH384. Thematically-focused topics in painting, sculpture, architecture and decorative arts of early and medieval Japan, from 5000 BC to 1500 AD.

ARTH 383 Art of Japan after 1500 (3) Prerequisite: ARTH290. Credit only granted for: (ARTH382 and ARTH383) or ARTH384. Formerly: ARTH384. Thematically-focused topics in the painting, sculpture, architecture, gardens and decorative arts of early modern, modern and contemporary Japan, from 1500 to present.

ARTH 385 Art of China (3) A chronological survey of Chinese painting, sculpture, and the applied arts.

ARTH 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-Art History & Archaeology department. Restriction: Junior standing or higher.

ARTH 389 Special Topics in Art History and Archaeology (3) Repeatable to 6 credits if content differs.

ARTH 418 Special Problems in Italian Renaissance Art (3) Repeatable to 6 credits if content differs. Focus upon aspects of painting, sculpture, and architecture of Renaissance.

ARTH 426 Renaissance and Baroque Sculpture in Northern Europe (3) Sculpture in France, Germany, England, and the Low Countries from the fourteenth to the seventeenth century.

ARTH 456 Photography Since World War II (3) Prerequisite: ARTH201. Credit only granted for: ARTH456 or (ARTH489B taken in Spring 2006). Formerly: ARTH489B. An exploration of the many uses and meanings of photography since 1945.

ARTH 465 The Landscape in Modern and Contemporary Art (3) Prerequisite: ARTH201. Credit only granted for: ARTH465 or (ARTH489B taken in Spring 2008 or Spring 2009). Formerly: ARTH489B. A consideration of the representations of outdoor spaces since 1850. Focuses on the ways in which artists have understood and tried to make sense of modern and postmodern cities, suburbs, and rural areas.

ARTH 466 Feminist Perspectives on Women in Art (3) Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

ARTH 484 Modern Chinese Film and Visual Culture (3) Also offered as: FILM426. Credit only granted for: ARTH484; ARTH489F in F2012, F2011, F2008, or S2009; or ARTH488F in S2010, S2008, or F2009 or FILM426. Formerly: ARTH489F in F2012, F2011, F2008, or S2009; or ARTH488F in S2010, S2008, or F2009. Modern Chinese culture, society, and history studied through examples of art, film, and visual culture.

ARTH 485 Chinese Painting (3) Chinese painting history from the second century B.C. through the twentieth century, covering cultural, stylistic and theoretical aspects.

ARTH 486 Japanese Painting (3) Japanese painting from the sixth through the nineteenth century, including Buddhist icon painting, narrative scrolls, and Zen-related ink painting.

ARTH 488 Colloquium in Art History (3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Repeatable to 9 credits if content differs. Colloquium to investigate a specific topic in depth.

ARTH 489 Special Topics in Art History (3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Repeatable to 9 credits if content differs.

ARTH 496 Methods of Art History and Archaeology (3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Restriction: Must be in Art History program. Methods of research and criticism applied to typical art-historical/ archaeological problems, familiarizing the student with bibliography and other research tools. Introduction to the historiography of art history and archaeology, surveying the principal theories, encouraging methodological debates within the discipline. Course for majors who intend to go on to graduate school.

ARTH 498 Directed Studies in Art History I (2-3) Prerequisite: Permission of ARHU-Art History & Archaeology department. Restriction: Junior standing or higher. Repeatable to 99 credits if content differs.

ARTH 499 Honors Thesis (1-6) Prerequisite: Permission of ARHU-Art History & Archaeology department. Repeatable to 6 credits if content differs.

ARTT -- Art Studio

ARTT 100 Two-Dimensional Design Fundamentals (3) Principles and elements of two-dimensional design. Introduction to visual communication.

ARTT 110 Elements of Drawing I (3) Fundamental concepts, media, and processes of drawing. Emphasis on observation and representation in combination with individual expression. Subject matter includes still life, human figure, nature, the built environment, and conceptual projects.

ARTT 150 Introduction to Art Theory (3) Fundamental concepts of global, philosophic, and critical art theory examined through various historic and contemporary texts, and the analysis of works of art.

ARTT 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 200 Three-Dimensional Art Fundamentals (3) Prerequisite: ARTT100 and ARTT110. Fundamental concepts of three-dimensional form and space examined through the manipulation and organization of various materials.

ARTT 208 Intermediate Special Topics in Art (3) Prerequisite: ARTT200 and ARTT110. Repeatable to 6 credits if content differs. Development of student's work on an intermediate studio level within the context of a special topic.

ARTT 210 Elements of Drawing II (3) Prerequisite: ARTT110. Continuation of ARTT110 with additional emphasis on color, figure drawing, and contemporary issues.

ARTT 255 Introduction to Digital Art and Design Processes (3) Prerequisite: ARTT100 and ARTT110. Credit only granted for: ARTT255 or ARTT354. Formerly: ARTT354. Introduction to basic software and principles of digital imaging, and how they are applied to art and design. Topics covered: Digital image construction and manipulation, Vector-Based digital techniques layout, typography, etc), time-based digital techniques (video and audio composition and manipulation), and basic interactivity (web-design). Digital media used to explore visual principles established in ARTT100.

ARTT 260 Dangerous Art: Censorship or Subsidy (3) Combines a broad historical analysis of the relationship between art and authority with an examination of contemporary culture criticism and art practice. Explores the uses and abuses of art and culture in totalitarianand theocratic states as a prelude to a review of the role of official culture in the United States. Examines art and culture in the public arena and many related areas where the arts and policy interact.

ARTT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 320 Elements of Painting (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes of oil and/or acrylic painting.

ARTT 330 Elements of Sculpture: Metal Casting (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes related to metal casting.

ARTT 331 Elements of Sculpture: Steel (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes related to steel fabrication; torch cutting, welding, hot forging, and finishing.

ARTT 332 Elements of Sculpture: Stone (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes using stone and related materials.

ARTT 333 Elements of Sculpture: Wood and Mixed Media (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Sculptural concepts and fundamental processes using wood and mixed media.

ARTT 334 Elements of Sculpture: Assembled Form and Material (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Examines concepts and fundamental processes through a variety of materials, basic techniques and processes related to building, fabrication, and installation.

ARTT 340 Elements of Printmaking: Intaglio (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to etching, aquatint, and drypoint.

ARTT 341 Elements of Printmaking: Woodcut and Relief (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to woodcuts, linocuts, and other relief printing media.

ARTT 343 Elements of Printmaking: Screen Printing (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to silkscreen printing.

ARTT 344 Elements of Printmaking: Lithography (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Concepts and fundamental processes related to drawing, preparing, and printing images on lithograph stones or plates.

ARTT 353 Elements of Photography (3) Prerequisite: ARTT200, ARTT210, and ARTT150; or permission of ARHU-Art department. Introduction to black-and-white photography. Basic technical and aesthetic vocabulary, camera mechanics and darkroom techniques. Introduction to the photographic message and meaning in both fine art and design concept.

ARTT 355 Intermediate Graphic Design Principles (3) Prerequisite: ARTT150, ARTT200, ARTT210, and ARTT255; and must be admitted to the Graphic Design Concentration (Track 3). Credit only granted for: ARTT350 or ARTT355. Formerly: ARTT350. Investigation of basic concepts, history, techniques, and materials used by professional graphic designers, focusing on typography. Explores various aspects of design related to typography through examination and production of many types of finished work.

ARTT 356 Graphic Design Processes (3) Prerequisite: ARTT150, ARTT200, ARTT210, and ARTT255; and must have been admitted to Graphic Design Concentration (Track 3). Credit only granted for: ARTT351 or ARTT356. Formerly: ARTT351. Explores computer graphics and visual communcation principles in a time-based context. Examination of fundamental design principles through digital projects that involve photo manipulation, digital illustration, layout, animation, and web design.

ARTT 357 Interactive Design (3) Prerequisite: ARTT355 and ARTT356. In-depth exploration of interactive design and website construction. Emphasis on concept-driven and community-based projects using variety of interactive software programs.

ARTT 360 African American Art Theory: Exploration/Expression of Identity (3) Prerequisite: ARTT150. Credit only granted for: ARTT360 or HONR279C. Examines how African American artists have used their work to represent, reinvent, and subvert racial identity. By examining changes in modes of expression, formal concerns, and pictorial themes, it will explore the impact of black aesthetics in American art.

ARTT 361 Design Literacy: Decoding Our Visual Culture (3) Prerequisite: ARTT355 and ARTT356. Credit only granted for: ARTT361 or ARTT489L. Formerly: ARTT489L. Holistic presentation of design history and theory from pre-history to present. Covers primarily visual communication design and includes the interrelationship of interior-, furniture-, industrial-, fashion-design, and architecture.

ARTT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 370 Elements of Digital Media (3) Prerequisite: ARTT150, ARTT200, ARTT210, and ARTT255; or permission of ARHU-Art department. Exploration of image creation and manipulation, interactivity, and linkages between digital audio and video. Emphasis on issues in contemporary digital art.

ARTT 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-Art department. Restriction: Junior standing or higher.

ARTT 389 Department of Art Undergraduate Teaching Assistantship (3) Prerequisite: Permission of ARHU-Art department. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized assistantship in the teaching of a specified department course offering. Must have previously received an "A" grade for the class to be assisting.

ARTT 399 Department of Art Research Assistantship (1-3) Prerequisite: Permission of ARHU-Art department. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized experiential learning developed in relation to art-related research issues.

ARTT 409 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ARTT 418 Advanced Drawing Studio (3) Prerequisite: ARTT200, ARTT210, and ARTT150; and must have completed one 300-level studio course. Or permission of ARHU-Art department. Repeatable to 12 credits. Multi-level drawing studio emphasizing advanced concepts and processes related to drawing; emphasis on contemporary art issues and individual directions.

ARTT 428 Advanced Painting Studio (3) Prerequisite: ARTT320. Repeatable to 12 credits. Multi-level painting studio emphasizing advanced concepts and processes related to oil and acrylic painting; emphasis on contemporary art issues and individual directions in chosen media.

ARTT 438 Advanced Sculpture Studio (3) Prerequisite: Must have completed one 300-level sculpture course; or permission of ARHU-Art department. Repeatable to 12 credits. Multi-level sculpture studio; continuation of media-specific sculpture courses with emphasis on contemporary art issues and individual directions in chosen media.

ARTT 448 Advanced Printmaking Studio (3) Prerequisite: Must have one 300-level printmaking course; or permission of ARHU-Art department. Repeatable to 12 credits. Multi-level printmaking studio; continuation of media-specific printmaking courses with emphasis on contemporary art issues and individual directions in chosen media.

ARTT 449 Advanced Photography Studio (3) Prerequisite: ARTT353; or permission of ARHU-Art department. Repeatable to 12 credits if content differs. Advanced photographic processes and theory. Emphasis on contemporary art issues and individual directions.

ARTT 454 Advanced Graphic Design Principles: Design in Society (3) Prerequisite: ARTT355 and ARTT356. Focus on social responsibility and community activism. History and theory of propaganda and advocacy-based design. Students explore current design practices, work individually, and collaborate in teams with non-profits or other clients with community-based or socio-cultural agendas. Research and writing-intensive course.

ARTT 455 Three Dimensional Graphic Design (3) Prerequisite: ARTT355, ARTT356, and ARTT357. Recommended: ARTT333. Credit only granted for: ARTT352 or ARTT455. Formerly: ARTT352. Continued exploration of advanced graphic design practices with primary emphasis on 3-D object and packaging design. Includes research, course reading discussion, oral presentations, and specific project assignments which will require a proficient level of hand-skills (craft) and computer skills.

ARTT 456 Motion Design (3) Prerequisite: ARTT355, ARTT356, and ARTT357; or permission of ARHU-Art department. Explores computer graphics and visual communication principles in a time-based context. Examination of fundamental design principles through digital projects that involve photo manipulation, digital illustration, layout, animation, and web design.

ARTT 457 Advanced Interactive Design (3) Prerequisite: ARTT357. Advanced concepts and technieques of interactive design and interactive software. Examination of corporate, client-based, and public service-based interactive graphic design. Emphasis on web-based interactive design structures.

ARTT 458 Graphic Design Portfolio (3) Prerequisite: ARTT454. Repeatable to 9 credits if content differs. Creation of a comprehensive professional portfolio. Curriculum includes portfolio preparation and presentation, contracts, copyright issues, interviewing skills, resume and cover-letter writing, design briefs and proposals, and freelance business issues. Portfolio presentation includes basics of book arts.

ARTT 459 Advanced Graphic Design Studio (3) Prerequisite: ARTT454; or permission of ARHU-Art department. Repeatable to 9 credits if content differs. Student-run design firm working with non-profits and other organizations. Organizations act as clients; the students as a creative firm. Under guidance and supervision of faculty, students learn first-hand about working with clients, working within a budget, working with printers and press runs, and working under real deadlines.

ARTT 460 Seminar in Art Theory (3) Restriction: Senior standing. Exploration of relationship between content and processes of art in a contemporary multi-cultural context.

ARTT 468 Seminar on the Interrelationship Between Art and Art Theory (3) Restriction: Junior standing or higher; or permission of ARHU-Art department. Repeatable to 6 credits if content differs. The relationship between a student's work and the theoretical context of contemporary art.

ARTT 469 Professional Practice (3) Restriction: Senior standing; or permission of ARHU-Art department. Repeatable to 6 credits if content differs. Formerly: ARTT462. Business aspects of being an artist, with an emphasis on starting and maintaining a professional career.

ARTT 479 Advanced Digital Media Studio (3) Prerequisite: ARTT370; or permission of ARHU-Art department. Repeatable to 12 credits if content differs. Variable multi-level studio emphasizing advanced concepts and processes related to time-based, projection, installation, interactive, and audio/visual integrated digital art. Emphasis on contemporary art issues and individual directions.

ARTT 480H Honors Seminar (3) Team-taught seminar focusing on relationship between student's work and the theoretical context of contemporary art.

ARTT 481 Advanced Specialization Seminar (3) Prerequisite: Permission of ARHU-Art department. Seminar combines contemporary art theory, criticism, professional practice and career preparation in relation to students works from all areas of specialization.

ARTT 487 Capstone for Citation in Interdisciplinary Multimedia and Technology (1) Prerequisite: Permission of ARHU-Art department. Independent study: a paper or website synthesizing the various citation learning experiences.

ARTT 488 Advanced Special Topics in Graphic Design (1-3) Prerequisite: Permission of ARHU-Art department. Repeatable to 6 credits if content differs. Variable topics in Graphic Design theory and practice.

ARTT 489 Advanced Special Topics in Art (1-3) Prerequisite: Permission of ARHU-Art department. Repeatable to 12 credits if content differs. Advanced studio art and theory within the context of a special topic.

ARTT 498 Directed Studies in Studio Art (1-3) Prerequisite: Permission of ARHU-Art department. Repeatable to 12 credits if content differs. Advanced independent work in Studio Art. Meeting with faculty and studio time arranged.

ARTT 499 Directed Studies in Graphic Design (1-3) Prerequisite: Permission of ARHU-Art department. Repeatable to 12 credits if content differs. Advanced independent studies in Graphic Design. Meetings with faculty and studio time arranged.

ASTR -- Astronomy

ASTR 100 Introduction to Astronomy (3) Credit only granted for: ASTR100, ASTR101, or ASTR120. An elementary course in descriptive astronomy, especially appropriate for non-science students. Topics include the Sun, Moon, planets, stars, and nebulae, galaxies, and evolution of the Universe.

ASTR 101 General Astronomy (4) Credit only granted for: ASTR100, ASTR101, or ASTR120. Descriptive astronomy, appropriate for non-science majors. Sun, moon, planets, stars, nebulae, galaxies and evolution. Laboratory exercises include use of photographic material, computer simulations, and standard laboratory equipment.

ASTR 120 Introductory Astrophysics - Solar System (3) Prerequisite: Must have completed or be concurrently enrolled in MATH115. Restriction: Must not have completed ASTR101 or ASTR100. Credit only granted for: ASTR100, ASTR101, or ASTR120. For students majoring in astronomy or with a strong interest in science. Topics include development of astronomy, planetary orbits, electromagnetic radiation, telescopes as well as constituents and origin of the solar system (planets, satellites, comets, asteroids, meteoroids, etc.).

ASTR 121 Introductory Astrophysics II - Stars and Beyond (4) Prerequisite: ASTR120 and MATH115; or permission of CMNS-Astronomy department. For students majoring in astronomy or with a strong interest in science. Includes instrumentation, stellar properties, stellar evolution, structure of the galaxy, other galaxies, large scale structure, Big Bang Theory, and future of the universe.

ASTR 220 Collisions in Space - The Threat of Asteroid Impacts (3) Restriction: Must not be in Astronomy program. Additional information: Course is open to Astronomy and Planetary Sciences minors. Appropriate for non-science majors. Worried? Can't sleep? Collisions in Space will evaluate the threat of asteroid impacts with the Earth using knowledge of asteroid characteristics and orbits. The merits of possible defense plans will be discussed, as well as the budgetary and political concerns associated with implementing any such plan.

ASTR 230 The Science and Fiction of Planetary Systems (3) Prerequisite: Must have math eligibility of MATH115 or higher; or MATH113. Have you ever wondered if humans will ever terraform Mars or Europa so we could live there without a spacesuit? Has it ever crossed your mind how lucky you are that you live on a water-rich planet with an oxygen-rich atmosphere? Have you ever suspected novelists and scriptwriters of creating ridiculous planets that violate scientific laws? Does the fate of our planet's thin biosphere keep you up at night? How common is life in the Universe? These are difficult questions, but armed with the right information, you can answer all of them. The Science and Fiction of Planetary Systems will help you develop a deeper understanding of why planets are the way they are. Along the way, you'll see examples of mistakes made in classic science fiction movies, novels and short stories and get the chance to invent your own plausible planets!

ASTR 288 Special Projects in Astronomy (1-3) Prerequisite: Permission of CMNS-Astronomy department. Repeatable to 6 credits. Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under special supervision.

ASTR 300 Stars and Stellar Systems (3) Prerequisite: ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department. Designed primarily for non-science majors. Study of stars-types, properties, evolution, and distribution in space; supernovae, pulsars, and black holes.

ASTR 305 Astronomy and the Media (3) Although science plays a central role in modern life, the media can present scientific discoveries and thought as too complex and arcane for intelligent laypeople to understand. This has the effect of excluding non-scientists from this important intellectual discourse and sometimes of even manipulating their views. This course uses astronomy (and other science) news stories to give students the tools and motivation to critically evaluate scientific news for themselves, enabling them to use the media to keep abreast of science throughout their lives.

ASTR 310 Observational Astronomy (4) Prerequisite: ASTR121; and (PHYS171 or PHYS161). Or permission of CMNS-Astronomy department. Restriction: Must be in Astronomy program. Introduction to current optical observational techniques, with brief coverage of infrared, ultraviolet, and x-ray techniques. Statistics, spherical trigonometry time, catalogs, geometrical and physical optics, telescopes, and optical instruments. Effects of the atmosphere. Practical work at the observatory using a CCD camera. Some nighttime observing sessions.

ASTR 315 Astronomy in Practice (4) Restriction: Must not be in Astronomy program. Additional information: Appropriate for non-science majors. Students learn astronomy research techniques and contribute significantly to the existing body of astronomical knowledge. Students apply methods and tools such as celestial coordinates, telescopes and CCD cameras, and appropriate analysis software to a specific observational goal. Students produce a work detailing their scientific result which will be submitted for publication in a professional venue. Each semester, the course focuses on a specific astronomical topic or type of object, such as asteroids, extrasolar planets, supernovae in other galaxies, quasars, etc.

ASTR 320 Theoretical Astrophysics (3) Prerequisite: ASTR121; and (PHYS270 and PHYS271; or PHYS273). Or permission of CMNS-Astronomy department. Application of selected physics concepts in an astrophysical context. Topics would include gravity (Keplerian motion, Virial theorem, Roche limit, dynamical friction); gas dynamics (hydrostatic equilibrium, stellar models, spiral density waves), thermodynamics and statistical physics (Boltzmann distribution, Wien displacement, convective

instability, degenerate gas); atomic physics (quantum principles, H atom, permitted and forbidden lines); radiation processes (line radiation, opacity).

ASTR 330 Solar System Astronomy (3) Prerequisite: ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or the General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department. Credit only granted for: ASTR330 or GEOL212. Designed primarily for non-science majors. The structure of planets and of their atmospheres, the nature of comets, asteroids, and satellites. Comparison of various theories for the origin of the solar system. Emphasis on a description of recent data and interpretation.

ASTR 340 Origin of the Universe (3) Prerequisite: ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department. Designed primarily for non-science majors. A study of our progression of knowledge about the universe. Topics include: early cosmological models, geocentric vs. heliocentric theory, curvature of space, Hubble's Law, Big Bang Theory, microwave background radiation, evolution of stars and galaxies, dark matter, active galaxies, quasars and the future of the universe.

ASTR 350 Black Holes (3) Prerequisite: ASTR100 or ASTR101; and completion of the CORE Distributive Studies requirement in Mathematics and Sciences or General Education Fundamental Studies requirement in Mathematics. Or permission of CMNS-Astronomy department. Credit only granted for: ASTR 398B or ASTR 350. Formerly: ASTR 398B. Black holes are the most exotic prediction of Einstein's Theory of General Relativity and, amazingly, the Universe seems to manufacture these bizarre objects in copious numbers. As well as being the ultimate laboratory for studying the nature of space and time, they drive some of the most energetic and extreme phenomena known to astronomers (with quasars and gamma-ray bursts being just a couple of examples). In this introduction to the physics and astrophysics of black holes, we start by examining the basic physics of black holes, which fundamentally means understanding gravity. We then look at the nature of stellar-mass black holes and supermassive black holes. We will discuss the fairly recent realization that black holes may be crucial agents for regulating the growth of galaxies. Finally, we dive into the realm of theoretical physics and probe how black holes may provide a route for uncovering new laws of physics governing the structure of space and time.

ASTR 380 Life in the Universe - Astrobiology (3) Designed primarily for non-science majors. Study of the astronomical perspective on the conditions for the origin and existence of life in the universe.

ASTR 386 Experiential Learning (1-3) Restriction: Junior standing or higher; and permission of CMNS-Astronomy department.

ASTR 398 Special Topics in Astronomy (3) Restriction: Junior standing or higher; or permission of CMNS-Astronomy department. Repeatable to 6 credits if content differs. This course is designed primarily for students not majoring in astronomy and is suitable for nonscience students. It will concentrate study in some limited field in astronomy which will vary from semester to semester. Possible subjects for study are the solar system, extragalactic astronomy and cosmology, the inconstant universe.

ASTR 399 Honors Seminar (1-16) Restriction: Must be admitted to the departmental honors program in astronomy. Credit according to work done.

ASTR 406 Stellar Structure and Evolution (3) Prerequisite: ASTR320; or permission of CMNS-Astronomy department. Credit only granted for: ASTR 498N or ASTR 406. Formerly: ASTR 498N. Study of stellar internal structure, nuclear reactions, and energy transport. Study of stellar evolution of both low-mass and high-mass stars, including the stellar end states of white dwarfs, neutron stars, and black holes.

ASTR 410 Radio Astronomy (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Introduction to current observational techniques in radio astronomy. The radio sky, radiophysics, coordinates and catalogs, antenna theory, Fourier transforms, interferometry and arrays, aperture synthesis, and radio detectors.

ASTR 415 Computational Astrophysics (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Introduction to the most important computational techniques being used in research in astrophysics. Topics include modern high performance computer architectures, scientific visualization and data analysis, and detailed descriptions of numerical algorithms for the solution to a wide range of mathematical systems important in astrophysics.

ASTR 421 Galaxies (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Introduction to structure, kinematics, and dynamics of normal and peculiar galaxies. Quantitative descriptions of normal spiral galaxies (like our Milky Way) and elliptical galaxies will be followed by more exotic considerations such as interacting and merging galaxies, and active galactic nuclei.

ASTR 422 Cosmology (3) Prerequisite: Must have completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department. Introduction to modern cosmology. Topics include large scale structure of universe, the intergalactic medium, the nature of dark matter cosmological models and galaxy formation.

ASTR 430 The Solar System (3) Prerequisite: ASTR121; and (PHYS271 and PHYS270; or PHYS273). Or permission of CMNS-Astronomy department. Formation and evolution of the Solar System. Planetary surfaces, interiors, atmospheres, and magnetospheres. Asteroids, comets, planetary satellites, and ring systems. Emphasis on using basic physics to understand observed properties of the Solar System. Intended for students majoring in the physical sciences.

ASTR 435 Astrophysics of Exoplanets (3) Prerequisite: ASTR121; and (PHYS273; or (PHYS270 and PHYS271)). Or permission of CMNS-Astronomy department. Credit only granted for: ASTR 498X or ASTR 435. Formerly: ASTR 498X. Introduction to exoplanets. Topics include historical development, advantages, and limitations of detection methods, the statistics of exoplanet characteristics, the bulk properties of known expolanets, and remote sensing for characterization of exoplanets.

ASTR 450 Orbital Dynamics (3) Prerequisite: Must have completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department. Vectorial mechanics, motion in a central force field, gravitational and non-gravitational forces, the two-body and three-body problems, orbital elements and orbital perturbation theory, resonances in the solar system, chaos. Intended for students majoring in any of the physical sciences.

ASTR 480 High Energy Astrophysics (3) Prerequisite: Must have completed or be concurrently enrolled in ASTR320; or permission of CMNS-Astronomy department. The structure, formation, and

astrophysics of compact objects, such as white dwarfs, neutron stars, and black holes, are examined. Phenomena such as supernovae and high-energy particles are also covered.

ASTR 498 Special Problems in Astronomy (1-6) Restriction: Must be in one of the following programs (Physics; Astronomy) ; and permission of CMNS-Astronomy department. Research or special study. Credit according to work done.

BCHM -- Biochemistry

BCHM 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and must have a learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

BCHM 461 Biochemistry I (3) Prerequisite: Minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277. Credit only granted for: BCHM461 or BCHM463. First semester of a comprehensive introduction to modern biochemistry. Structure, chemical properties, and function of proteins and enzymes, carbohydrates, lipids, and nucleic acids. Basic enzyme kinetics and catalytic mechanisms.

BCHM 462 Biochemistry II (3) Prerequisite: Minimum grade of C- in BCHM461. Credit only granted for: BCHM462 or BCHM463. A continuation of BCHM 461. Metabolic pathways and metabolic regulation, energy transduction in biological systems, enzyme catalytic mechanisms.

BCHM 463 Biochemistry of Physiology (3) Prerequisite: Minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277. Credit only granted for: BCHM461, BCHM462 or BCHM463. A one-semester introduction to general biochemistry. A study of protein structure, enzyme catalysis, metabolism, and metabolic regulation with respect to their relationship to physiology.

BCHM 464 Biochemistry Laboratory (3) Prerequisite: BCHM461 or BCHM463; and a grade of C- or better in the prerequisite is required for all College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: BCHM465. Restriction: BCHM, CHEM, and Nutritional Sciences majors have first priority, followed by other life science majors. Biochemical and genetic methods for studying protein function. Site-directed mutagenesis and molecular cloning, protein purification, enzyme activity assays, computer modeling of protein structure.

BCHM 465 Biochemistry III (3) Prerequisite: BCHM461 or BCHM463; and a grade of C- or better in the prerequisite is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Recommended: BCHM462. CORE Capstone (CS) Course. An advanced course in biochemistry. Biochemical approach to cellular information processing. DNA and RNA structure. DNA replication, transcription, and repair. Translation of mRNA to make proteins.

BCHM 485 Physical Biochemistry (3) Prerequisite: Minimum grade of C- in CHEM481. Restriction: Must be in Biochemistry program; or permission of instructor. Credit only granted for: CHEM482 or BCHM485. Physical Chemistry with applications to biological systems. Principal topics: quantum chemistry, spectroscopy, structural methods for biological macromolecules, statistical thermodynamics, transport processes in liquid phase, chemical and biochemical kinetics, modeling and simulation, polymer dynamics.

BIOE -- Bioengineering

BIOE 100 Introductory Mathematics for Engineering (4) Prerequisite: High School-level Algebra I, Algebra II, Trigonometry, and Pre-Calculus. Overview of the salient math topics most heavily used in the core engineering courses. These include algebraic manipulation of engineering equations, trigonometry, vectors and complex numbers, sinusoids and harmonic signals, systems of equations and matrices, differentiation, integration and differential equations. All math topics will be presented within the context of an engineering application, and reinforced through extensive examples of their use in the core engineering courses.

BIOE 120 Biology for Engineers (3) Prerequisite: Must have completed or be concurrently enrolled in MATH140. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Introduction to the functions and interactions of biological systems from a quantitative perspective. Introduction to the modern experimental techniques and methods of data analysis. Roles for bioengineers in biology, and the role of biology in bioengineering will be elucidated.

BIOE 121 Biology for Engineers Laboratory (1) Restriction: Permission of ENGR-Fischell Department of Bioengineering department. This course will build on the material covered in BIOE120. Experiments conducted in this laboratory course will cover topics such as biomechanical principles, biochemical methods, genetics and selection, scaling, microcosm interactions, human factors and imaging.

BIOE 150 Applied Ethics and Public Policy in Bioengineering (3) Credit only granted for: BIOE150 or HONR288L. Students learn about medical devices such as heart valves and artificial hearts. Government requirements for clinical testing and the obligations that physicians, manufacturers, FDA and Congress have to patients are discussed.

BIOE 160 Biopharmaceutical Production (3) Restriction: Permission of ENGR-Fischell Department of Bioengineering department; and must be in the Young Scholars Program. Credit only granted for: BIOE168 or BIOE160. Formerly: BIOE168. Focuses on the basics of recombinant DNA technology as applied to biopharmaceutical manufacturing in a classroom setting. Students will work through a "production campaign" including all key steps of manufacturing a protein product.

BIOE 221 Academic and Career Planning (1) Prerequisite: BIOE120 and BIOE121. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Provides practical tools to help Bioengineering majors think critically about their goals and career paths. Guides Bioengineering students through accessing useful resources both on- and off-campus.

BIOE 232 Bioengineering Thermodynamics (3) Prerequisite: PHYS261 and PHYS260. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE232, ENES232, ENME232, or ENME320. A quantitative introduction to thermodynamic analysis of bioengineering systems. Bioengineering encompasses a wide range of applications from nanoscale interactions (e.g. reactions between molecules), to cellular interactions (e.g. membrane electrical currents), to overall balances on organisms, all the way to large scale manufacturing. Each of these applications (and many others not mentioned) involve energy interactions which is the domain of thermodynamics. The basic laws of thermodynamics will be introduced and explained through a series of examples related to bioengineering systems.

BIOE 241 Biocomputational Methods (3) Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Application of computer technology to biological and natural resource

systems considering engineering aspects. Designed to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.

BIOE 331 Biofluids (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241; and must have completed or be concurrently enrolled in BIOE232. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE331, ENCE305, or ENME331. Principles and applications of fluid mechanics with a focus on bioengineering topics. Content includes conservation of mass, momentum, and energy, as well as the application of these fundamental relations to hydrostatics, control volume analysis, internal and external flow, and boundary layers. Applications to biological and bioengineering problems such as tissue engineering, bioprocessing, imaging, and drug delivery.

BIOE 332 Transport Process Design (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241; and must have completed or be concurrently enrolled in BIOE331 or ENME331. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Fluid flow, heat transfer, and mass transfer with applications in medicine, environment, biotechnology, food, agriculture, and other biosystems. Design of solutions to current problems in biological engineering is emphasized.

BIOE 340 Modeling Physiological Systems and Lab (4) Prerequisite: BSCI330, BIOE120, BIOE121, BIOE241, and MATH246. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE340 or (BSCI440 and BSCI441). Topics covered will include cell and general physiology, membrane physiology, blood cells and clotting, circulation, metabolism, respiration, and the nervous system. A lab component will also be included.

BIOE 371 Linear Systems and Ordinary Differential Equations for Bioengineering Applications (3) Prerequisite: Must have completed or be concurrently enrolled in MATH246. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. This class utilizes fundamentals in linear systems, including eigenvalues and eigenvectors, as well as linear differential equations, to study various problems in bioengineering and biological systems, with a particular emphasis on feedback, stability, controllability, and control design.

BIOE 372 Biostatistics for Experimental Design and Data Analysis (3) Prerequisite: BIOE120, BIOE121, and BIOE241. Recommended: MATH246. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE372 or STAT464. This course will instruct students in the fundamentals of probability and statistics through examples in biological phenomenon, the design of bioengineering experiments, and clinical data analysis. Fundamentals covered in the course include probability distributions, hypothesis testing, power analysis, regression analysis, and correlation analysis.

BIOE 399 Independent Study in Bioengineering (1-3) Prerequisite: Permission of ENGR-Fischell Department of Bioengineering department. Repeatable to 6 credits if content differs. Independent study.

BIOE 404 Biomechanics (3) Prerequisite: MATH246, BIOE120, ENES102, BIOE121, and BIOE241. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Introduction to the fundamentals of biomechanics including force analysis, mechanics of deformable bodies, stress and strain, multiaxial deformations, stress analysis, and viscoelasticity. Biomechanics of soft and hard tissues.

BIOE 411 Tissue Engineering (3) Prerequisite: Must have completed at least one biology course; and (BIOE120, BIOE121, BIOE241, MATH246, and MATH241). Or permission of ENGR-Fischell Department of Bioengineering department. Recommended: BSCI330 and BIOE340. Restriction:

Permission of ENGR-Fischell Department of Bioengineering department. Also offered as: CHBE487. Credit only granted for: BIOE411 or CHBE487. A review of the fundamental principles involved in the design of engineered tissues and organs. Both biological and engineering fundamentals will be considered.

BIOE 420 Bioimaging (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Examines the physical principles behind major biomedical imaging modalities and new ways of using images for bio-related applications.

BIOE 422 Biosystems Engineering (3) Prerequisite: BIOE120 and BIOE121; or (BSCI170 and BSCI171); or BSCI105. And (ENME331, BIOE331, ENCE305, or BIOE332). Conservation of mass in the context of biological systems at different scales (i.e., cellular, organ, and ecosystem), life cycles such as carbon cycle, nitrogen cycle, photosynthesis, water cycle, Kreb cycle, and aerobic and anaerobic cycles as they relate to biosystem function and health.

BIOE 431 Fundamentals of Biosensor Techniques, Instrumentation, and Applications (3) Prerequisite: CHEM135, PHYS260, PHYS261, BSCI330, BIOE120, BIOE121, BIOE241, and MATH246; or permission of ENGR-Fischell Department of Bioengineering department. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. A thorough review of fundamental concepts of biosensing systems, principles of common detection methods, and modern applications of biosensors. Primarily literature driven. Students will obtain a detailed understanding of cutting-edge biosensing techniques, the instrumentation used, and the application space. Students also will develop skills in using current literature as a source of knowledge.

BIOE 432 Fundamentals of Biophotonics Imaging and Microscopy (3) Prerequisite: PHYS270 and BIOE420. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE432, BIOE632, or BIOE689C. Principles and instrumentation of various biomedical optical techniques, including fluorescene and Raman spectroscopy, confocal and multi-photon microscopy, optical coherence tomography, and diffuse optical tomography. Biomedical aplications will also be discussed.

BIOE 437 Computer-Aided Design in Bioengineering (3) Prerequisite: BIOE120, BIOE121, BIOE241, and MATH246; or permission of ENGR-Fischell Department of Bioengineering department. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE437, BIOE689V, ENME414, ENME272, or ENAE488D. Formerly: BIOE689V. Introduction to Computer-Aided Design (CAD). Basic CAD operations will be demonstrated in class with Creo Parametric (formerly Pro/E). Lecture topics will summarize design methodology, review best-practices in hardware development, and discuss engineering applications. The course will culminate in a student-selected project leveraging CAD.

BIOE 453 Biomaterials (3) Prerequisite: CHEM231, MATH246, CHEM232, BIOE120, BIOE121, and BIOE241. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Also offered as: ENMA425. Credit only granted for: ENBE453, BIOE453, or ENMA425. Formerly: ENBE453. Examination of the structure and function of natural biomaterials, and cell-extracellular matrix interactions. Study physical properties of synthetic biomaterials for biomedical applications. Understanding molecular level interactions between biomolecules and biomaterials to design novel biomaterials with desirable characteristics. Application of biomaterials as implants, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds will be covered.

BIOE 455 Basic Electronic Design (3) Prerequisite: MATH246, BIOE120, BIOE121, and BIOE241. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE455 or ENBE455. Formerly: ENBE455. Familiarization with basic electronic circuits and the ability to produce simple electronic designs.

BIOE 456 Bioinstrumentation (3) Prerequisite: BIOE455. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE456 or ENBE456. Formerly: ENBE456. Study of biomedical instrumentation and biomedical equipment technology. How biomedical equipment is used to measure information from the human body. Hands-on experience with representative biomedical equipment.

BIOE 457 Biomedical Electronics & Instrumentation (4) Prerequisite: BIOE120, BIOE121, BIOE241, PHYS261, MATH246, and PHYS260. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Students learn fundamental concepts of electronics, assembly of electronic components into functional circuits, and integration of functional electronic devices and circuits into a system. In the lab component, students will learn to assemble and evaluate circuits and systems.

BIOE 460 Biotechnology and Bioproduction (3) Restriction: Junior standing or higher. Credit only granted for: BIOE460, BIOE468B, or ENES489Q. Formerly: BIOE468B. Basics of recombinant DNA technology and biopharmaceutical manufacturing.

BIOE 461 Synthetic Biology and Biological Engineering (3) Prerequisite: BIOE120, BIOE121, BIOE241, and MATH246; or permission of ENGR-Fischell Department of Bioengineering department. Recommended: Completion of BSCI222 and/or BSCI330 recommended. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE489G or BIOE 461. Formerly: BIOE489G. Students are introduce to the scientific foundation and concepts of synthetic biology and biological engineering. Current examples that apply synthetic biology to fundamental and practical challenges will be emphasized. The course will also address the societal issues of synthetic biology, and briefly examine interests to regulate research in this area.

BIOE 468 Selected Topics in Bioengineering (3) Prerequisite: BIOE120 and BIOE121. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Repeatable to 9 credits if content differs. Selected topics in Bioengineering will be covered and taught by a variety of department faculty.

BIOE 471 Biological Systems Control (3) Prerequisite: BIOE455. Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE471 or ENBE471. Formerly: ENBE471. Principles of control systems designed by biological engineers and analysis of control mechanisms found in biological organisms. Apparent control strategies used by biological systems will be covered.

BIOE 484 Engineering in Biology (3) Prerequisite: (MATH121 or MATH141; or must have completed MATH221); and (PHYS141 or PHYS161); and must have completed CHEM103 or higher. Or permission of ENGR-Fischell Department of Bioengineering department. Recommended: BIOE454. Credit only granted for: BIOE484 or ENBE484. Formerly: ENBE484. Engineering with biological systems, with emphasis on utilization, design, and modeling. Broad topics include differences between biological engineering and biological science; basic sciences and how they relate to biology; typical biological responses to environmental stimuli; scaling, and utilization of living things.

BIOE 485 Capstone Design I: Entrepreneurship, Regulatory Issues, and Ethics (3) Prerequisite: 21 credits in BIOE courses. Restriction: Permission of ENGR-Fischell Department of Bioengineering department; and senior standing; and must be in Engineering: Bioengineering program. Credit only granted for: BIOE485 or ENBE485. Formerly: ENBE485. This is the first part of a two-semester senior capstone design course which covers principles involved in engineering design, design approaches, economics of design, ethics in engineering, and patent regulations. It also helps students learn team work and write design project proposals under the mentorship of a faculty advisor.

BIOE 486 Capstone Design II (3) Prerequisite: Must have completed BIOE485 in the immediately preceding semester. Restriction: Senior standing; and must be in Engineering: Bioengineering program; and permission of ENGR-Fischell Department of Bioengineering department. Credit only granted for: BIOE486 or ENBE486. Formerly: ENBE486. This is the second part of the senior capstone design course. This part is independent instruction where faculty mentoring each project team works with students to order supplies, fabricate their proposed design under BIOE485, test the design, write the report and present it to their fellow seniors and board of faculty mentors. Students are taught to convert the blue print of a design to actual device and test it.

BIOE 489 Special Topics in Bioengineering (1-3) Restriction: Permission of ENGR-Fischell Department of Bioengineering department. Repeatable to 6 credits. Exploring a variety of topics with Bioengineering.

BIOM -- Biometrics

BIOM 301 Introduction to Biometrics (3) Prerequisite: MATH113 or MATH115. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON321, EDMS451, GEOG306, GVPT422, PSYC200, or SOCY201. Descriptive statistics, introduction to probability, sampling, confidence interval estimation, hypothesis testing, simple regression and correlation. Emphasis on simple applications of statistical techniques and interpretation of statistical results.

BIOM 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

BIOM 405 Computer Applications in Biometrics (1) An introduction to computer applications for data analysis. This is equivalent to the computer lab of 601 and is required for students that have taken BIOM 301 and BIOM402 and wish to go directly into BIOM602.

BMGT -- Business and Management

BMGT 110 Introduction to the Business Value Chain (3) Students are provided with an introduction to the business value chain with an emphasis on inter-organizational and intra-organizational coordination of core business processes. Emphasis is on cross-functional integration and the efficient and effective management of core processes with an emphasis on marketing, operations and supply chain management.

BMGT 190 Introduction to Design and Quality (4) Restriction: Permission of BMGT-Robert H. Smith School of Business. Also offered as: ENES190. Credit only granted for: BMGT190 or ENES190. Exposes engineering and business students to the principles of total quality, using experiential team-learning and technology-aided approaches. The first of four courses in total quality.

BMGT 198 Special Topics in Business and Management (1-3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

BMGT 220 Principles of Accounting I (3) Basic theory and techniques of contemporary financial accounting. Includes the accounting cycle and the preparation of financial statements for single owner and partnership forms of business organizations operating as service companies or merchandisers.

BMGT 221 Principles of Accounting II (3) Prerequisite: BMGT220. Basic theory and techniques of accounting for managerial decision making. Involves the introduction of the corporation and manufacturing operations. Includes cost-volume-profit analysis and capital budgeting. Introduces the topics of income taxation and international accounting.

BMGT 230 Business Statistics (3) Prerequisite: MATH113 or MATH115; or must have math eligibility of MATH120 or higher. Restriction: Must not have completed ENCE302, ENME392, STAT400, BMGT231, or ENEE324. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Introductory course in probabilistic and statistical concepts including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression and decision theory and the application of these concepts to problem solving in business and the application of these concepts to problem solving in business and management.

BMGT 298 Special Topics in Business and Management (1-3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

BMGT 300 Information Systems for Non Business Majors (2) Restriction: Must be admitted to the Minor in General Business or the Minor in Innovation and Entrepreneurship; and must not have completed BMGT301; and must not be in a major in the R.H. Smith School of Business. Credit only granted for: BMGT300 or BMGT301. Additional information: Course does not apply to a Smith School degree. Course may be substituted by BMGT301 for General Business or Innovation and Entrepreneurship minor students only. Introduces students to the transformative potential of emerging and existing information technologies and their impacts on the structure and competitive dynamics of various industries.

BMGT 301 Introduction to Information Systems (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Additional information: CMSC majors will not receive credit for this course towards their upper level concentration in their CMSC major. All BMGT majors, including students who are a double major in CMCS, must complete BMGT301 for their BMGT degree. Comprehensive overview of information systems (IS), which explores the strategic and tactical nature of IS. The basic concepts in analyzing and designing information systems for business applications will be presented. Aspects of data management such as databases, data warehousing, data analysis, and data mining will be analyzed, and the basics of web page and web site design will be outlined. Students will also be introduced to modern information systems infrastructure such as telecommunications, networks, and information systems security. Knowledge of Excel or a similar spreadsheet tool.

BMGT 302 Designing Applications for Business Analytics (3) Prerequisite: BMGT301; or permission of BMGT-Robert H. Smith School of Business. Restriction: Must be in a major in BMGT-Robert H.

Smith School of Business; and must not be in Computer Science program. Provides an introduction to structured programming with business applications. Programming logic and data structures are introduced. The course especially emphasizes hands-on exercises using Excel macros and Visual Basic for Applications (VBA), and covers business functions and analytics.

BMGT 310 Intermediate Accounting I (3) Prerequisite: BMGT221. Comprehensive analysis of financial accounting topics related to financial statement preparation and external reporting.

BMGT 311 Intermediate Accounting II (3) Prerequisite: BMGT310. Continuation of BMGT310.

BMGT 313 Financial Statement Analysis (3) Prerequisite: BMGT221. Provides students with the tools to conduct a financial statement analysis, which is part of an overall business analysis. Involves understanding and using the information that financial statements are communicating to users.

BMGT 321 Managerial Accounting (3) Prerequisite: BMGT221. A study of the basic concepts of product costing and cost analysis for management planning and control. Emphasis is placed on the role of the accountant in organizational management, analysis of cost behavior, standard cost budgeting, responsibility accounting and relevant costs for decision-making.

BMGT 323 Taxation of Individuals (3) Prerequisite: BMGT221. Federal taxation of individuals focusing on income, exclusions, deductions, depreciation, credits and capital transactions. Property coverage includes the tax consequences of sales and dispositions of investment and business assets. Both tax planning and compliance issues are covered.

BMGT 326 Accounting Systems (3) Prerequisite: BMGT221; and (BMGT201 or BMGT301). A study of accounting systems and computer and communications technology.

BMGT 332 Quantitative Models for Management Decisions (3) Prerequisite: BMGT231 or BMGT230; or students who have taken courses with comparable content may contact the department. The aim of this course is to introduce management science techniques for informed decision-making that can be applied in spreadsheet models to assist in the decision-analysis process. Models include Linear Programming, Transportation and Assignment problems, network flow models, Integer and non-linear programming, Simulation and Decision Trees.

BMGT 340 Business Finance (3) Prerequisite: BMGT221; and (BMGT231 or BMGT230). Topics include: the principles and practices involved in the organization, financing and rehabilitation of business enterprises; the various types of securities and their use in raising funds, apportioning income, risk and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

BMGT 341 Financial Markets (3) Prerequisite: Must have completed or be concurrently enrolled in BMGT340. Formerly: BMGT498G. Shows the interconnectedness of the markets. The role of the Central bank and monetary policy is included in this context. Students develop an understanding of: (i) the determination of interest rates; (ii) financial instruments, markets and institutions; (iii) the impact of monetary policy on institutions; and (iv) how financial innovations create markets.

BMGT 342 Wall Street Finance (3) Prerequisite: BMGT340. Credit only granted for: BMGT448F or BMGT342. Formerly: BMGT448F. Using concepts and tools of finance, students will examine a wide range of business problems and explore possible solutions. The course is designed to improve a student's

problem solving capabilities, business writing and communication skills, teamwork, and planning skills. Students will also gain experience in analyzing issues frequently faced by financial decision-makers.

BMGT 343 Investments (3) Prerequisite: BMGT340. Credit only granted for: BMGT343 or ECON435. Additional information: This course cannot be used to fulfill any requirements for majors in Economics. An introduction to financial investments. Topics include: securities and securities markets; investment risks, returns and constraints; portfolio policies; and institutional investment policies.

BMGT 345 Foundations of Financial Management for Non Business Majors (3) Restriction: Must not have completed BMGT340; and must not be a major in the R.H. Smith School of Business. Credit only granted for: BMGT345 or BMGT340. Additional information: Course does not apply to a Smith School degree. BMGT340 may substitute for BMGT345. Provides students an overview of financial management. Students will understand how to accomplish the firm goal of maximizing shareholder value, learn how to conduct a financial statement analysis, and recognize its various elements, including profitability, credit risk, revenue, assets, liability, and cash flows. Understand the relationship between risk and return and how it impacts investment and corporate decisions.

BMGT 349 Private Equity and Venture Capital (3) Prerequisite: Must have completed or be concurrently enrolled in BMGT313 and BMGT340. Repeatable to 6 credits. Formerly: BMGT448B. The New Markets Private Equity/Venture Capital Clinic allows students to gain professional experience commensurate with that of an Associate in a Venture Capital Firm. Students are trained to buy, own, actively manage and sell high growth technology companies in private transactions. The class format includes: lectures; presentations from guest speakers, including the regions leading CEOs, private equity and service providers; and a series of facilitated exercises that simulate buying, owning and selling businesses. The course exposes students to real life activities covering the entire deal process from market research, diligence, selection, negotiation valuing, and structuring an investment, as well as management, growth and exit of portfolio companies.

BMGT 350 Marketing Principles and Organization (3) Prerequisite: ECON200 or ECON205. An introduction to the concepts and principles of marketing including the marketing of service and nonprofit organizations. Provides an overview of all the concepts in marketing including relationship marketing, product development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution and internal marketing to employees.

BMGT 352 Customer-Centric Innovation (3) Prerequisite: BMGT350. Addresses the management of new products and services with a focus on the innovation process, specifically the development and launching of new products or services: Opportunity Identification, Concept Generation, Design, Testing and Launch.

BMGT 353 Retail Management (3) Prerequisite: BMGT220 and BMGT350. Planning and implementing retail marketing strategy. Store and nonstore (catalog, internet) retailing. Evaluation of how environmental trends in the consumer market, competition, the economy and technology affect retail strategy in the U.S. and global market.

BMGT 355 Foundations of Marketing for Non Business Majors (3) Restriction: Must not have completed BMGT350; and must not be a major in the R.H. Smith School of Business. Credit only granted for: BMGT355 or BMGT350. Additional information: Course does not apply to a Smith School degree. BMGT350 may substitute for BMGT355. Introduces the concepts and principles of marketing. Provides an overview of all the concepts in marketing including relationship marketing, product development,

pricing, promotion, marketing research, consumer behavior, international marketing, distribution and internal marketing to employees.

BMGT 357 Retailing and Marketing Internship (3-6) Prerequisite: BMGT350. Restriction: Permission of BMGT-Robert H. Smith School of Business; and must be in a major in BMGT-Robert H. Smith School of Business. Supervised work experience with a firm engaged in marketing goods or services. Students apply concepts learned in marketing classes and analyze the firm's organizational structure, environment and marketing strategy.

BMGT 360 Strategic Management of Human Capital (3) Provides students with the basic knowledge needed to help organizations attract, select, develop, engage, evaluate, and retain talent. Topics covered may include strategic HRM, the role of globalization, legal issues in HRM, work analysis, HR planning, recruitment, personnel selection, performance management and appraisal, training and development, career development, compensation systems, motivating and rewarding performance, labor relations, and employee health and safety.

BMGT 361 Entrepreneurship: Starting and Managing the Entrepreneurial Venture (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business; and must be in the Smith Entrepreneurship Fellows Program; and must not have completed BMGT461. Credit only granted for: BMGT261, BMGT361, or BMGT461. Formerly: BMGT261. Focuses on the early development of a new venture. Topics include: idea-getting, opportunity recognition, feasibility studies, new venture financing and startup. Guests speakers and practicing entrepreneurs offer real world guidance. Restricted to students admitted to the Smith Entrepreneurship Fellows Program.

BMGT 362 Negotiations (3) Restriction: Must not have completed COMM425. Credit only granted for: BMGT362 or COMM425. By using a variety of assessment tools, feedback sources, skill-building exercises, and exercise debriefings, this experiential course is designed to enhance students' negotiating self-confidence and improve students' analytical skills, interpersonal skills, creativity and persuasive abilities.

BMGT 363 Leadership and Teamwork in Organizations (3) Provides a comprehensive understanding of fundamental leadership concepts, theories, and skills in organizations and applies to assessing and developing effective leadership practices in organizations.

BMGT 364 Managing People and Organizations (3) An introduction to selected aspects of human behavior in organizations generally known as organizational behavior (OB). This course is designed to help students develop systematic and fundamental understanding of people and their behaviors in organizations, as well as useful abilities and skills required to effectively and ethically manage various individual, interpersonal, group, and organization-level processes.

BMGT 365 Entrepreneurial Finance and Private Equity (3) Prerequisite: BMGT461 or BMGT361. Restriction: Junior standing or higher. Credit only granted for: BMGT365, ENES466 or HLMN471. Studies venture capital and private equity using a combination of cases, lectures and guest speakers. Addresses how venture capitalists provide capital to start-up firms in growing industries and how private equity markets provide capital to help established medium-sized firms (often family businesses) grow and restructure. Focuses on how financial, legal, and economic issues are dealt with in the financial contracts between venture capitalists and their limited partners and between capitalists (or other private equity investors) and the firms in which they invest.

BMGT 366 Growth Strategies for Emerging Companies (3) Prerequisite: BMGT461 or BMGT361. Restriction: Junior standing or higher. Offers practical management tools that are needed to build a new venture into a significant enterprise. The competencies, strategies and structures of successful high performance businesses are studied through cases, videos and guest lecturers. Topics include leadership, internal growth strategies, merger, acquisition and franchising.

BMGT 367 Career Search Strategies in Business (1) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. An overview and opportunity to practice job search skills critical to obtaining internships and full-time positions. Course will cover strategies for exploring career options, preparing job search materials, development of job search skills such as interviewing and networking. Students are encouraged to take this course in the sophomore or junior year.

BMGT 369 Experiential Learning in Business Innovation and Entrepreneurship (1-3) Repeatable to 15 credits if content differs. Additional information: Priority will be given to students enrolled in the Management Major, Innovation and Entrepreneurship Minor, and the General Business Minor. Selected experiential learning opportunities in business innovation and entrepreneurship

BMGT 370 Introduction to Transportation (3) An overview of the transportation field with an emphasis on freight movements from the perspective of both providers of capacity and users of freight services. Examines the characteristics of the freight modes and the role of each mode as a major component of logistics and supply chain management. Explores the economics, energy use, and finances of each mode as well as the impact of government policies on each mode's future. Discussion of infrastructure and capacity needs of the transportation system and its ability to support the economy.

BMGT 372 Introduction to Logistics and Supply Chain Management (3) Supply chain management involves the coordination of suppliers, manufacturers, distributors, and retailers to ensure that products and services are available to the final consumer in a timely and cost-effective fashion. Logistics management is the subset of supply chain management dealing with the physical flows of product and includes such activities as transportation management, warehousing, materials handling, inventory management, and order fulfillment. Attention is paid to the logistics cost trade-offs within the firm and between members of the supply chain.

BMGT 373 Supply Chain Management Internship (3-6) Prerequisite: BMGT370 or BMGT372. Restriction: Permission of BMGT-Robert H. Smith School of Business. Involves supervised work experience in supply chain management, logistics and/or transportation. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

BMGT 375 Supply Chain Management for Non Business Majors (2) Restriction: Must be admitted to the Minor in General Business or the Minor in Innovation and Entrepreneurship; and must not have completed BMGT372; and must not be a major in the R.H. Smith School of Business. Credit only granted for: BMGT375 or BMGT372. Additional information: Course does not apply to a Smith School degree. Course may be substituted by BMGT372 for General Business minor or Innovation and Entrepreneurship minor students only. Examines management decision-making in the design, implementation and coordination of a firm's supply chain activities. Topics include transportation management, warehousing, materials handling, inventory management, and order fulfillment.

BMGT 380 Business Law I (3) Legal aspects of business relationships. Examination of torts and business crimes, contracts and agency. The law of personal property and bailment relationships. Survey of public policy issues.

BMGT 381 Business Law II (3) Prerequisite: BMGT380; or permission of BMGT-Robert H. Smith School of Business. The Uniform Commercial Code, including sales, commercial paper, secured transactions, bulk sales and documents of title. The law of partnerships and corporations. Reorganization and liquidation under the bankruptcy laws. The law of real property, landlord and tenant relationships and decedents' estates.

BMGT 382 Marketing and Innovation for Entrepreneurs (3) Restriction: Must not have completed BMGT352. Credit only granted for: BMGT352 or BMGT382. Additional information: Course will not satisfy a Marketing major requirement. Marketing and Innovation are two critically important activities that determine success in any business venture. This course will focus on understanding the fundamentals of marketing and innovation from the perspective of an entrepreneur. At a broad level, we will apply proven marketing frameworks (STP and 4Ps) to effectively deliver innovation in an entrepreneurial context.

BMGT 385 Operations Management (3) Credit only granted for: BMGT385 or ENME426. Studies the design, management and improvement of a firm's processes and systems for creation and delivery of products and services. Includes strategic and operational views of supply chain, product development, and capacity analysis, highlighting the competitive advantages that operations management can provide the firm.

BMGT 386 General Business Internship (3-6) Restriction: Permission of BMGT-Robert H. Smith School of Business; and must be in a major in BMGT-Robert H. Smith School of Business. Supervised work experience in business. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

BMGT 390 Systems Thinking for Managerial Decision Making (3) Prerequisite: ENES190 or BMGT190; and must be a QUEST student. Also offered as: ENES390. Credit only granted for: BMGT390, ENES390, or ENES498X. An introduction to the theory, concepts, tools, and practices of systems thinking to enhance managerial decision making. Offers a blend of theory, real-life examples, and proven methods to initiate and sustain an organization-wide reorientation towards systems thinking.

BMGT 391 Leadership in Action (1) Prerequisite: Must have completed or be concurrently enrolled in BMGT364. Provides an overview and development of the basic skills necessary for managerial success. Reinforces the core topics and managerial functions covered in BMGT364 (Management & Organization Theory) in the areas of understanding the business environment, planning and decision-making, organizing, and leading & controlling. The course goes beyond theories and frameworks by focusing on building skills required to manage in contemporary organizations.

BMGT 392 Introduction to International Business Management (3) Prerequisite: ECON200. A study of the domestic and foreign environmental factors affecting the international operations of U.S. business firms. The course also covers the administrative aspects of international marketing, finance and management.

BMGT 395 Foundations of Management for Non Business Majors (2) Restriction: Must be admitted to the Minor in General Business or the Minor in Innovation and Entrepreneurship; and must not have completed BMGT364; and must not be a major in the R.H. Smith School of Business. Credit only granted for: BMGT395 or BMGT364. Additional information: Course does not apply to a Smith School degree. Course may be substituted by BMGT364 for General Business minor or Innovation and Entrepreneurship minor students only. Introduces concepts related to organization behavior. Topics include leadership, team decision making and management, conflict resolution and negotiations, organizational culture, and

organization change. Students will learn how to apply those concepts and theories to understanding and critically analyzing various individual, interpersonal, group, and organizational management processes.

BMGT 397 Mentoring Design and Quality Teams (3) Restriction: Restricted to QUEST Program (TQMP) students. Also offered as: ENES397. Credit only granted for: BMGT397, ENES397, or BMGT398D. Formerly: BMGT398D. Practice essential skills for leading and coaching multidisciplinary teams. These include effective communications, facilitation, conflict resolution, and the ability to motivate. Students will practice these skills as mentors for student teams from BMGT/ENES 190H. In the process, they will strengthen their knowledge of design and quality techniques.

BMGT 398 Individual Study in Business and Management (1-3) Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 6 credits.

BMGT 402 Database Systems (3) Recommended: BMGT302. Credit only granted for: INST327 or BMGT402. The fundamentals of database management systems (DBMS), data models, query processing, and data warehouses, and their application in the development of business information systems will be covered. An important goal of this course is to understand the value of information resources and information management challenges within an organization.

BMGT 403 Systems Analysis and Design (3) Prerequisite: BMGT301; or students who have taken courses with comparable content may contact the department. Recommended: BMGT302. Techniques and tools applicable to the analysis and design of computer-based information systems. System life cycle, requirements analysis, logical design of databases and performance evaluation. Emphasis on case studies. Project required that involves the design, analysis and implementation of an information system.

BMGT 404 Essential Data Skills for Business Analytics (3) Prerequisite: BMGT301. Understand the principles of data science and business analytics to collect, analyze and visualize business data. Students will learn the use of industry standard software with applications in finance, accounting, marketing and operations.

BMGT 405 Data Communications and Networking (3) Prerequisite: BMGT301; or students who have taken courses with comparable content may contact the department. Credit only granted for: INST346 or BMGT405. Concepts of business data communications and data processing. Application of these ideas in computer networks, including basic principles of telecommunications technology, computer network technology, data management in distributed database systems and management of the technical and functional components of telecommunications technology.

BMGT 406 Developing Applications for the Web and Social Media (3) Prerequisite: BMGT402 and BMGT302. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Credit only granted for: INST377 or BMGT406. The design and development of Web applications and the underlying platforms and standards for Web application development will be covered. It will examine the phenomenon of social media, social networking and crowdsourcing and understand their use within organizations.

BMGT 407 Information Systems Projects (3) Prerequisite: BMGT402 and BMGT403. Restriction: Senior standing. Senior capstone course for the decision and information sciences major. Collected knowledge from the DIS courses and application to significant problems of size and complexity. State-of-the-art research ideas and current business and industrial practices in information systems.

BMGT 408 Emerging Topics in Information Systems (3) Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 9 credits if content differs. Selected advanced topics covering emerging developments in the field of decision and information technologies.

BMGT 410 Government Accounting (3) Prerequisite: BMGT221. An introduction to the theory and practice of accounting and financial reporting as applied in both federal and state/local governments, with a focus on generally accepted accounting principles applicable in each. Topics include analyzing transactions; recognizing transactions in the accounting cycles; and preparing and analyzing financial statements and the overall financial reports at both the federal and state/local government levels.

BMGT 411 Ethics and Professionalism in Accounting (3) Prerequisite: BMGT311. Restriction: Must be in Accounting program. Analysis and discussion of issues relating to ethics and professionalism in accounting.

BMGT 417 Taxation of Corporations, Partnerships and Estates (3) Prerequisite: BMGT221. Federal taxation of corporations using the life-cycle approach-formation, operation, assessment, merger, reorganization and liquidation. Overviews of pass-through entities - partnerships and s-corporations - using the life-cycle approach, and the tax consequences of wealth transfers by individuals - gift and estate taxation. Both tax planning and compliance issues are addressed.

BMGT 422 Auditing Theory and Practice (3) Prerequisite: BMGT310; and must have completed or be concurrently enrolled in BMGT311. A study of the independent accountant's attest function, generally accepted auditing standards, compliance and substantive tests and report forms and opinions.

BMGT 423 Fraud Examination (3) Prerequisite: BMGT310. Covers fraud prevention, detection and investigation techniques. The traditional accounting areas of fraud-fraudulent financial accounting and misappropriation of assets as well as recent and historical cases of fraud will also be examined. Current fraud topics will be discussed.

BMGT 424 Advanced Accounting (3) Prerequisite: BMGT311. Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.

BMGT 428 Special Topics in Accounting (3) Prerequisite: BMGT310. Restriction: Must be in Accounting program. Repeatable to 9 credits if content differs. Selected advanced topics in Accounting.

BMGT 430 Data Modeling in Business (3) Prerequisite: BMGT231 or BMGT230; or permission of BMGT-Robert H. Smith School of Business. Explores the role of statistical models in business analytics to drive managerial decision-making and improve performance through the use of relevant data-motivated examples. Topics include regression models (both simple and multiple regression, as well as logistic regression for binary data), model validation, variable transformation, variable selection, discriminant analysis, and forecasting. These topics are modeled using state-of-the-art data analytics software.

BMGT 431 Data Analytics (3) Prerequisite: BMGT430. An introduction to the tools and techniques that are central to the analysis of abundant data that is being collected in many forms including web traffic, social network data, and reviews and comments on websites.

BMGT 434 Analytics Consulting: Cases and Projects (3) Prerequisite: BMGT332; and (MATH120 or MATH140; or must have completed MATH220). Or students who have taken courses with comparable content may contact the department. Restriction: Must be in a major in BMGT-Robert H. Smith School of

Business. This course assumes that students have already been introduced to the concepts and techniques of operations research/business analytics (OR/BA). Published papers, short cases, and projects in OR/BA will be analyzed and discussed in a thoughtful way, taking into account the soft (people-related) issues and the hard (mathematical/optimization) issues.

BMGT 435 Business Process Simulation (3) Prerequisite: BMGT231 or BMGT230; or students who have taken courses with comparable content may contact the department. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Develop and plan simulation studies, build simulation models with special purpose software, analyze and interpret the results. Extensive use of applications and real-world examples. The emphasis is on model formulation and the interpretation of results, rather than mathematical theory.

BMGT 438 Special Topics in Operations Management (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in operations management.

BMGT 440 Advanced Financial Management (3) Prerequisite: BMGT340. Analysis and discussion of cases and readings relating to financial decisions of the firm. The application of finance concepts to the solution of financial problems is emphasized.

BMGT 441 Fixed Income (3) Prerequisite: BMGT340. Credit only granted for: BMGT448A or BMGT441. Formerly: BMGT448A. Describes important financial instruments which have market values that are sensitive to interest rate movements. Develops tools to analyze interest rate sensitivity and value fixed income securities. Defines and explains the vocabulary of the bond management business.

BMGT 442 Advanced Portfolio Management (3) Prerequisite: BMGT343. Credit only granted for: BMGT442 or BMGT448C. Formerly: BMGT448C. An in-depth coverage of statistical methods for choosing stocks is provided. Financial markets data is used in the class. Students are also expected to learn and use Matlab during the class to implement the concepts of the class.

BMGT 443 Applied Equity Analysis and Portfolio Management (3) Prerequisite: BMGT343. Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation and selection of securities, especially common stock.

BMGT 444 Futures and Options Contracts (3) Prerequisite: BMGT343. Credit only granted for: BMGT444 or MATH424. The institutional features and economic rationale underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, efficiency in futures markets and stock and commodity options.

BMGT 445 Banking and Financial Institutions (3) Prerequisite: BMGT340. Recommended: ECON330 or BMGT341. Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income and source of funds. Bank objectives, functions, policies, organization, structure, services and regulation are considered.

BMGT 446 International Finance (3) Prerequisite: BMGT340. Financial management from the perspective of the multinational corporation. Topics covered include the organization and functions of foreign exchange and international capital markets, international capital budgeting, financing foreign trade and designing a global financing strategy. Emphasis of the course is on how to manage exchange and political risks while maximizing benefits from global opportunity sets faced by the firm.

BMGT 447 Computational Finance (3) Prerequisite: BMGT343. Credit only granted for: BMGT447 or BMGT448E. Formerly: BMGT448E. Students will be introduced to tools for solving financial problems, specifically Excel functions and techniques, Visual Basic (VBA) Programming and Monte Carlo method & variations. Students will then apply these tools to solve problems related to options valuation, portfolio management, and risk management.

BMGT 448 Special Topics in Finance (1-3) Repeatable to 9 credits if content differs. Selected advanced topics in finance.

BMGT 449 Investment Fund Management: Lemma Senbet Fund (3) Prerequisite: BMGT343. Corequisite: BMGT443. Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. The Lemma Senbet Fund is a year-long, advanced finance course available to undergraduate finance majors in their senior year. Ten to twelve students will be selected in the spring of their junior year to participate on the fund, two as portfolio managers and eight to ten as equity analysts. The course provides students with the opportunity to apply what they have learned in finance classes to actual investment decisions, through researching real companies and managing a portfolio of real money.

BMGT 450 Integrated Marketing Communications (3) Prerequisite: BMGT350. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Credit only granted for: BMGT354 or BMGT450. Formerly: BMGT354. In-depth study of coordinated marketing activities including advertising, sales promotion, Internet marketing, direct marketing and personal selling. Emphasizes strategic planning to effectively use these promotional tools to communicate with customers and meet marketing goals. Blends theory and current practice to provide managerial orientation.

BMGT 451 Consumer Analysis (3) Prerequisite: BMGT350. Recommended: PSYC100; and PSYC221. Identifying buyer behavior concepts relevant to a specific marketing problem so that appropriate marketing decisions can be made. Conceptual frameworks are drawn from psychology, sociology, economics, and other social sciences to aid in understanding the behavior of ultimate and industrial buyers.

BMGT 452 Marketing Research Methods (3) Prerequisite: BMGT350 and BMGT230. Focuses on aiding marketing decision-making through exploratory, descriptive and casual research. Develops student skills in designing market research studies, including selection of data collection method, development of data collection instrument, sample design, collection and statistical analysis of data and reporting the results.

BMGT 454 Global Marketing (3) Prerequisite: BMGT350. Marketing functions from the global executive's viewpoint, including coverage of global marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications and cost analysis. Consideration is given to the cultural, legal, financial and organizational aspects of global marketing.

BMGT 455 Sales Management (3) Prerequisite: BMGT350. The roles of the sales executive as a planner, manager of resources and marketing functions and recruiter, trainer, motivator and leader of field sales personnel. Techniques and sequence of problem analysis for selling and sales management decisions and to the practical framework in which these decisions take place. Teaching vehicles feature strong classroom interactions, cases, journal articles, research findings, guest sales managers, debates, and modern company practices.

BMGT 457 Marketing Policies and Strategies (3) Prerequisite: BMGT350. This capstone course ties together various marketing concepts using the fundamentals of strategic market planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.

BMGT 458 Special Topics in Marketing (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in marketing.

BMGT 461 Entrepreneurship (3) Restriction: Must not have completed BMGT361. Credit only granted for: BMGT261, BMGT361, BMGT461, ENES460 or HLMN470. Process of creating new ventures, including evaluating the entrepreneurial team, the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.

BMGT 463 Cross-cultural Challenges in Business (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Examines in depth the nature of international cultural value-differences and their behavioral-related effects in the workplace. Topics include decision-making and leadership styles and reactions to various work assignments and reward structures.

BMGT 465 Business Plan For The New Venture (3) Prerequisite: BMGT461 or BMGT361. Each student focuses on the production of a business plan that will be accepted for an annual business plan competition. Business plans of sufficient quality may be submitted to attract financing. Topics include a deep review of business construction and its derivative short forms.

BMGT 466 Global Business Strategy (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Focuses on the strategic challenges that directly result from and are associated with the globalization of industries and companies. Topics include drivers of industry globalization, difference between global and multi-domestic industry, global expansion strategies, sources of competitive advantage in a global context, and coordination of a company across a global network.

BMGT 468 Special Topics in Management and Organization (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in management and organization.

BMGT 469 Management and Organization Short-term Study Abroad (3) Repeatable to 9 credits if content differs. Selected short-term study abroad topics in management and organization.

BMGT 470 Carrier Management (3) Prerequisite: BMGT370. The study of the wide range of issues facing managers in transportation. This includes decisions on market entry, pricing, competitive responses, service levels, marketing strategies, capital structure, and growth objectives. Specific management decisions and overall strategies pursued by management are examined.

BMGT 471 Seminar in Supply Chain Management: An Executive Perspective (3) Prerequisite: BMGT372. Formerly: BMGT488L and BMGT498L. Designed to provide students intensive interaction with senior supply chain executives from a cross-section of industries. Executives will share their insights about leading competitive supply chains in the global marketplace and assist students in understanding how to develop supply chain career strategies. Students will research the competitive supply chain dynamics of each executive's industry and review/analyze their findings with the executive.

BMGT 472 Purchasing and Inbound Logistics (3) Prerequisite: BMGT372. Analysis of the resupply activities of logistics management, including purchasing policies, transportation planning, and inventory

control. Attention is directed toward total cost minimization and the establishment of a sustainable competitive advantage based on procurement.

BMGT 476 Technology Applications in Supply Chain Management (3) Prerequisite: BMGT372. An understanding of the role of technology in managing the supply chain. Provides students with hands-on experience in advanced software systems that build on top of enterprise resource planning systems. Major emphasis is placed on demonstrating that these systems result in supply chain cost reductions and service improvements.

BMGT 477 International Supply Chain Management (3) The study of the importance of the supply chain management within a global context. Topics covered include: the structure, service, pricing and competitive relationships among international carriers and transport intermediaries as well as documentation, location decisions, international sourcing/distribution and management of inventory throughout the international supply chain.

BMGT 478 Special Topics in Supply Chain Management (3) Repeatable to 9 credits if content differs. Additional information: Course prerequisites will vary depending on the topic. A maximum of 3 credits of BMGT478 course work can fulfill Supply Chain Management major requirements. Selected advanced topics in supply chain management.

BMGT 484 Digital Marketing (3) Prerequisite: BMGT350. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Examines the process of developing, implementing, and analyzing strategies for successfully marketing a variety of existing and potential products and services through digital means, including the web, social media, and mobile apps. Both the development and analysis of digital media for marketing will be discussed.

BMGT 485 Project Management (3) Prerequisite: BMGT231 or BMGT230; or students who have taken courses with comparable content may contact the department. Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Modern project management techniques that are used by modern practicing professionals will be covered. Particular attention is given to the management of technology based systems and projects in a business enterprise. The topics covered include: defining project scope, alignment of projects with enterprise strategy, managing project cost, time and risks using tools such as CPM/PERT, and measuring project performance.

BMGT 487 Six Sigma Innovation (3) Prerequisite: STAT400, BMGT231, BMGT230, or ENME392. Enhances the overall understanding of Six Sigma Strategy, Tools and Methods to positively influence the performance of a business process, a product or service. Highlights the application of Define-Measure-Analyze-Improve-Control (DMAIC),Design For Six Sigma (DFSS), and the pursuit of Critical to Quality criteria (CTQ's) in a collaborative perspective, one that recognizes a balance between efficiency, and effectiveness and between statistical analysis and statistical thinking.

BMGT 488 Special Topics in Logistics, Business, and Public Policy (1-3) Repeatable to 6 credits if content differs. Selected advanced topics in logistics, business and public policy.

BMGT 490 Quest Consulting and Innovation Practicum (4) Prerequisite: ENES390 or BMGT390. Also offered as: ENES490. Credit only granted for: BMGT490 or ENES490. Final course in the QUEST Honors Fellows Program three-course curriculum. Based on a team-based consulting project with one of QUEST's professional partners. A project advisor and professional champion supervise each student team. Requires extensive out-of-class work.

BMGT 491 Defining Consulting and Innovation Projects (3) Prerequisite: BMGT190 or ENES190. Restriction: Restricted to QUEST Program (TQMP) students. Also offered as: ENES491. Credit only granted for: BMGT491, ENES491 or BMGT438D. Formerly: BMGT438D. Cultivate relationships with new and current corporate partners and prepare project scopes for QUEST's capstone course, BMGT/ENES 490H. Requires independent work communicating with clients and class visits to a variety of potential project sites.

BMGT 493 Honors Study (3) Restriction: Permission of BMGT-Robert H. Smith School of Business. First semester of the senior year. The course is designed for honors students who have elected to conduct intensive study (independent or group). The student will work under the direct guidance of a faculty advisor and the Assistant Dean of Undergraduate Studies. They shall determine that the area of study is of a scope and intensity deserving of a candidate's attention. Formal written and/or oral reports on the study may be required by the faculty advisor.

BMGT 494 Honors Study (3) Prerequisite: BMGT493. Restriction: Permission of BMGT-Robert H. Smith School of Business; and must be in the Smith School Honors Fellows program. Second semester of the senior year. The student shall continue and complete the research initiated in BMGT 493, additional reports may be required at the discretion of the faculty advisor and Assistant Dean of Undergraduate Studies.

BMGT 495 Strategic Management (3) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. A case-based course where students learn to play the role of the "strategic manager" who defines the scope of its business operations and, within the chosen scope, how the firm will compete against rivals. This course focuses on how a firm can both formulate effective business-level and corporate-level strategies to achieve competitive advantage and earn above average profits.

BMGT 496 Business Ethics and Society (3) Prerequisite: 1 course in BMGT; or permission of BMGT-Robert H. Smith School of Business. A study of the standards of business conduct, morals and values as well as the role of business in society with consideration of the sometimes conflicting interests of and claims on the firm and its objectives. Emphasizes a strategic approach by business to the management of its external environment.

BMGT 497 Strategic Management for Non Business Majors (2) Restriction: Must be admitted to the Minor in General Business or the Minor in Innovation and Entrepreneurship; and must not be a major in the R.H. Smith School of Business. Additional information: Course does not apply toward a Smith School degree. Focuses on how a firm can both formulate and implement effective business-level and corporate-level strategies to achieve competitive advantage and earn above average profits

BMGT 498 Special Topics in Business and Management (3) Restriction: Permission of BMGT-Robert H. Smith School of Business. Repeatable to 6 credits if content differs. Special topics in business and management designed to meet the changing needs and interests of students and faculty.

BMGT 499 Advanced Business Topics (1) Restriction: Must be in a major in BMGT-Robert H. Smith School of Business. Repeatable to 3 credits if content differs. Course will delve deeply into a specific business topic. Based on experience and knowledge from undergraduate core business classes, students will examine a particular subject from various angles.

BSCI -- Biological Sciences Program

BSCI 103 The World of Biology (4) Additional information: Not acceptable for degree requirements in Biological Sciences, Chemistry, or Biochemistry. An introduction to modern biology for the non-science major. Major themes include molecular biology, cell biology, evolution and organismal biology. Relevance of study of biology to modern human life will be emphasized.

BSCI 120 Insects (3) A survey of the major groups of insects, their natural history, and their relationships with humans and their environment. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

BSCI 121 Beekeeping (2) Additional information: Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry. A study of the life history, behavior and seasonal activities of the honeybee, its place in pollination of flowers with emphasis on plants of economic importance and bee lore in literature.

BSCI 124 Plant Biology for Non-Science Students (3) Restriction: For non-science majors only; and must not have completed BSCI105; and must not have completed BSCI170 or BSCI171. Additional information: CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI 125. A basic course in plant biology specifically designed for the non-science student. Emphasis is placed on an evolutionary and ecological approach to studying fundamental concepts and processes of plants, their place in the biosphere, the importance of plants to man, and the manner in which humans impact on plants and their environment. This course will not count toward graduation requirements for any student in Biological Sciences, Chemistry, Biochemistry or the College of Agriculture and Natural Resources.

BSCI 125 Plant Biology Laboratory (1) Corequisite: BSCI124. Restriction: For non-science majors only; and must not have completed BSCI105; and must not have completed BSCI170 or BSCI171. Credit only granted for: BSCI105, BSCI170, or BSCI125. Additional information: CORE Life Sciences Lab (LL) Course only when taken concurrently with BSCI 125. An introduction to the biology of plants with emphasis on the processes by which plants function, the diversity of plants, and the importance of plants to humans. This course will not count toward graduation requirements for any student in Biological Sciences, Chemistry, Biochemistry or the College of Agriculture and Natural Resources. CORE Lab Science.

BSCI 126 Pollinators in Crisis (3) We will dissect the pollinator crisis, and in the process learn about insects, about the interaction of organisms in complex ecosystems, and about the human-nature interface. Students will work in groups that specialize in an aspect of pollinator biology and their challenges. Instruction will target methods for collecting information, interpretation of scientific information and the professional presentation of findings.

BSCI 135 Amazing Green: Plants that Transformed the World (4) An interactive way to learn about plants and science, focusing on how plants have changed human history, the biology of their growth, and the science behind their use.

BSCI 160 Principles of Ecology and Evolution (3) Prerequisite: Must have math eligibility of MATH120 or higher. Restriction: For Science Majors. Credit only granted for: BSCI106 or BSCI160. Formerly: BSCI106. Basic principles of biology with special emphasis on ecological and evolutionary biology.

BSCI 161 Principles of Ecology and Evolution Lab (1) Prerequisite: Must have math eligibility of MATH120 or higher. Corequisite: BSCI160. Restriction: For Science majors. Basic laboratory principles of biology with special emphasis on ecological and evolutionary biology.

BSCI 170 Principles of Molecular & Cellular Biology (3) Prerequisite: Must have math eligibility of MATH120 or higher. Recommended: For Science majors. Credit only granted for: BSCI105 or BSCI170. Formerly: BSCI105. Basic principles of biology with special emphasis on cellular and molecular biology.

BSCI 171 Principles of Molecular & Cellular Biology Laboratory (1) Prerequisite: Must have math eligibility of MATH120 or higher. Corequisite: BSCI170. Recommended: For Science majors. Basic laboratory principles of biology with special emphasis on cellular and molecular biology.

BSCI 201 Human Anatomy and Physiology I (4) Prerequisite: BSCI170 and BSCI171; or BSCI105; or students who have taken courses with comparable content may contact the department. Anatomy and physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

BSCI 202 Human Anatomy and Physiology II (4) Prerequisite: BSCI201; or permission of CMNS-Biology department. Anatomy and physiology of the cardiovascular, respiratory, immune, digestive, urinary and reproductive systems. Course not acceptable toward major requirements in Biological Sciences, Chemistry or Biochemistry.

BSCI 205 Environmental Science (3) Additional information: Course not acceptable to degree requirements in Biological Sciences, Chemistry, or Biochemistry. Basic ecological principles as they relate to the ecological dilemmas of overpopulation, pollution, increasing consumption of natural resources, and deteriorating land use ethics facing mankind today.

BSCI 206 Chesapeake: A Living Resource (3) Credit only granted for: BSCI206 or BSCI373. The living resources of the Chesapeake Bay from an ecosystem perspective. Designed for non-science majors, it will acquaint students with the Bay's watershed, its physical environment, and its living organisms, with an emphasis on the connections between these factors. Understanding the relationships between physical, chemical and biological processes will equip students to comprehend and appreciate the remarkable productivity of our estuary, as well as provide them with the knowledge needed to protect the Bay. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

BSCI 207 Principles of Biology III - Organismal Biology (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105. And must have completed or be concurrently enrolled in CHEM131. The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.

BSCI 215 Global Sustainability: A Biologist's Perspective (3) Credit only granted for: BSCI205 or BSCI215. An overview of basic ecological and evolutionary principles and how they relate to current global dilemmas such as overpopulation, pollution, preservation of biodiversity, and the ethics involved in these dilemmas.

BSCI 222 Principles of Genetics (4) Prerequisite: CHEM131 and CHEM132; and (BSCI160 and BSCI161; or BSCI106); and (BSCI170 and BSCI171; or BSCI105). Or must have completed BSCI105 or (BSCI170 and BSCI171); and two semesters of chemistry. Principles and mechanisms of heredity and gene expression. Considers plant, animal, and microbial organisms.

BSCI 223 General Microbiology (4) Prerequisite: BSCI170 and BSCI171; or BSCI105. Fundamental concepts in morphology, physiology, genetics, immunology, ecology, and pathogenic microbiology. Applications of microbiology to medicine, the food industry and biotechnology.

BSCI 258 College Park Scholars Internship (1-3) Restriction: For College Park Scholars - Life Sciences students only. Repeatable to 6 credits if content differs. Additional information: Course not acceptable towards in Biological Sciences, Chemistry, or Biochemistry. Credit to be determined by CPS Director. Must be completed by end of sophomore year.

BSCI 279 Supplemental Study (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 6 credits. Research or special study to complement a course taken previously which is not fully equivalent to current departmental requirements. Credit according to work done.

BSCI 283 Principles of Microbiology (4) Prerequisite: BSCI207 and BSCI222. Credit only granted for: BSCI223 or BSCI283. Additional information: Priority given to BSCI, BCHM and CHEM majors. Introduction to microorganisms designed for science majors. Genetic principles underlying microbial abilities; microbial structure-function relationships; metabolism, physiology, and ecology of microorganisms; interactions between microorganisms (including pathogens) and their hosts.

BSCI 288 Internship (1-6) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 12 credits if content differs. Additional information: Does not satisfy Biological Sciences major requirements. An individual experience arranged by the student with the instructor.

BSCI 289 Off-Campus Internship (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 5 credits if content differs. Additional information: Course not acceptable toward major requirements in the Biological Sciences. Elective credit for formally established off-campus research internship. Permission of Director of Outreach required.

BSCI 328 Special Topics in Entomology (1-4) Repeatable to 6 credits if content differs. Lectures, seminars, mini-courses and other special instruction in various entomological subjects.

BSCI 329 Instructional Assistance Practicum (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 3 credits if content differs. Additional information: Course not acceptable toward major requirements in the Biological Sciences. Students serve as instructional assistants in selected undergraduate biology courses. Roles and responsibilities are determined on a course- specific basis and approved by the College Undergraduate Program Committee.

BSCI 330 Cell Biology and Physiology (4) Prerequisite: Minimum grade of C- in CHEM131 and CHEM132. And minimum grade of C- in BSCI170 and BSCI171; or minimum grade of C- in BSCI105. Restriction: Must not have completed BSCI230. Credit only granted for: BSCI230 or BSCI330. Formerly: BSCI230. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

BSCI 333 Principles of Paleontology (4) Prerequisite: GEOL102; or (BSCI207 or BSCI392); or permission of CMNS-Geology department. Also offered as: GEOL331. Credit only granted for: GEOL 331 or BSCI 333. A review of the theory, principles, and applications of Paleontology. A systematic overview of the morphology, evolution, and relationships of the major fossil-producing taxa.

BSCI 334 Mammalogy (3) Prerequisite: Minimum grade of C- in BSCI207. And minimum grade of C- in BSCI160 and BSCI161; or minimum grade of C- in BSCI106. Introduction to the biology of mammals, including evolution, physiological, and behavioral specializations.

BSCI 335 Mammalogy Laboratory (1) Prerequisite: Minimum grade of C- in BSCI160 and BSCI161; or minimum grade of C- in BSCI106. And minimum grade of C- in BSCI207; and must have completed or be concurrently enrolled in BSCI334. Lab and field techniques for the study of mammals, focusing on their identification, anatomy, histology, spatial distribution, ecology, and behavior.

BSCI 337 Biology of Insects (4) Prerequisite: BSCI160 and BSCI161; or BSCI106; or permission of CMNS-Entomology department. An overview of the biology, evolution and diversity of insects and their relatives. Insect morphology, physiology, behavior and ecology; the impact of insects on humanity and the management of pest insect populations; assembly of an insect collection is required.

BSCI 338 Special Topics in Biology (1-4) Repeatable to 6 credits if content differs. Lectures, seminars, mini-courses and other special instruction in various biological subjects.

BSCI 339 Selected Topics in Biology (1-4) Prerequisite: Permission of CMNS-Biology department. Repeatable to 9 credits if content differs. Lectures, seminars, and other selected instruction courses in various biological subject matter.

BSCI 342 Biology of Reproduction (3) Prerequisite: BSCI170 and BSCI171; or BSCI105; or permission of CMNS-Biological Sciences UG Program. Also offered as: WMST326. Credit only granted for: BSCI342 or WMST326. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior, and menopause.

BSCI 348 Special Topics in Cell Biology and Molecular Genetics (1-4) Presentation and discussion of special subjects in the field of cell biology and molecular genetics. A maximum of three credit hours of BSCI 348 may be applied to major.

BSCI 353 Principles of Neuroscience (3) Prerequisite: 1 course with a minimum grade of C- from (BSCI207, BSCI330). Corequisite: PHYS122, PHYS142, or PHYS132. Principles of nervous system function, ranging from molecular and cellular basis of neuron function through nervous system integration.

BSCI 360 Principles of Animal Behavior (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105. And BSCI222. Study of animal behavior with emphasis on its evolution and function. Topics include genetic basis of behavior, communication, aggression, foraging, cooperation, mate selection, and relevance for conservation.

BSCI 361 Principles of Ecology (4) Prerequisite: BSCI160 and BSCI161; or BSCI106. And (MATH130 or MATH140). Basic principles of population, community, and ecosystem ecology. Use of these principles to predict possible consequences of human-caused changes in the environment and to understand the level of uncertainty of those predictions.

BSCI 362 Ecology of Marsh and Dune Vegetation (2) Prerequisite: BSCI160 and BSCI161; or BSCI106. An examination of the biology of higher plants in dune and marsh ecosystems.

BSCI 363 The Biology of Conservation and Extinction (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. Ecology, evolutionary biology, and paleontology will be applied to the study of conservation, species invasions, and extinction.

BSCI 364 Conservation Biology Lab (1) Prerequisite: Must have completed or be concurrently enrolled in BSCI363. Credit only granted for: BSCI 338Q or BSCI 364. Formerly: BSCI 338Q. Understanding and applying principles, practices and common tools of conservation biology. Synthesizing and applying ecological and socioeconomic knowledge to conservation issues.

BSCI 370 Principles of Evolution (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. Understanding evolutionary processes in a natural and human environment, including adaptation; DNA sequence, protein, and genome evolution; evolution of developmental mechanisms; mechanisms of evolutionary change (mutation, natural selection, drift); epidemiology; coevolution and biological control; speciation; comparative methods; extinction and conservation; human evolution.

BSCI 373 Natural History of the Chesapeake Bay (3) Prerequisite: 3 credits in BSCI courses; or permission of CMNS-Biological Sciences UG Program. Also offered as: ENST373. Credit only granted for: BSCI206, BSCI373, or ENST373. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.

BSCI 375 Biological Oceanography (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. Fundamentals of biological processes in the world's oceans; emphasizes ecology of marine organisms and how ocean chemistry and ocean circulation influence biological processes such as production, dispersal, and food chain dynamics.

BSCI 378H Cell Biology and Molecular Genetics Department Honors Seminar (1) Required seminar for all students participating in departmental honors research program.

BSCI 379 Cell Biology and Molecular Genetics Department Research (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. This course is arranged to provide qualified majors an opportunity to pursue research problems under the supervision of a member of the department.

BSCI 379H Cell Biology and Molecular Genetics Department Honors Research (1-4) Student should consult program guidelines. Research project carried out under guidance of faculty advisor.

BSCI 389 Entomology Department Research (1-2) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Credit to be determined by the department. Should be taken during the junior year. Investigations of assigned entomological problems. No more than 4 credit hours of BSCI389 may be applied to the 120 credit hours needed for the Bachelor's degree.

BSCI 389H Entomology Department Honors Research (1-2)

BSCI 392 Biology of Extinct Animals (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. A survey of extinct animals that have few, if any, direct living descendants. The principles governing the functional design of animals will be used to infer life styles for extinct, and frequently bizarre, organisms.

BSCI 393 Biology of Extinct Animals Laboratory (1) Prerequisite: Must have completed or be concurrently enrolled in BSCI392. An overview of the techniques used in paleobiological reconstructions of extinct animals.

BSCI 394 Vertebrate Form and Function (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105. And (BSCI207 or BSCI330). Comparative functional anatomy of

vertebrates in the context of adaptation to their environments. The vertebrate body and its systems will be considered in terms of structure, physiology, evolution, and embryonic development.

BSCI 398H Biology Department Honors Seminar (1) Required seminar for all students participating in departmental honors research program.

BSCI 399 Biology Department Research (1-3) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Restriction: Minimum cumulative GPA of 3.0. Repeatable to 8 credits if content differs. Research and/or integrated reading in biology under the direction and close supervision of a member of the faculty.

BSCI 399H Biology Department Honors Research (1-2) A laboratory research problem; required each semester during honors participation and culminating in an honors thesis.

BSCI 401 Animal Communication (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. And must have completed one semester of physics; and must have completed one semester of organic chemistry. Recommended: A course in animal behavior or biopsychology. Credit only granted for: BSCI401, BSCI 338W or BIOL 708W. Formerly: BSCI338W. Examining the mechanisms by which animal produce and receive signals in each sensory modality; and quantifying the type and amount of information conveyed in signals and how animals attend to such information.

BSCI 402 Genomics of Sensory Systems (3) Prerequisite: BSCI222; or permission of instructor. Credit only granted for: BSCI338C or BSCI402. Formerly: BSCI338C. An advanced course covering topics on the molecular basis of senses and the application of genomic techniques to studies of sensory systems & sensory ecology.

BSCI 403 Biology of Vision (3) Prerequisite: BSCI207. Recommended: BSCI222. Credit only granted for: BSCI 338V or BSCI 403. Formerly: BSCI 338V. An upper level undergraduate course on the physical, molecular, and neural basis of vision.

BSCI 404 Cell Biology from a Biophysical Perspective (3) Prerequisite: BSCI330. Recommended: PHYS121 and PHYS122; or completion of PHYS131 and PHYS132 recommended. Also offered as: BIOL704, BIPH704. Credit only granted for: BSCI338O, BSCI404, BIOL704, BIOL708O, or BIPH704. Formerly: BSCI338O. An approach to cell biology by focusing on mechanisms and unifying physical paradigms. It will not assume a great deal of factual biological knowledge, but will expect a background that prepares students to think mechanistically and quantitatively.

BSCI 405 Population and Evolutionary Genetics (3) Prerequisite: Minimum grade of C- in BSCI222; and 1 course with a minimum grade of C- from (MATH131, MATH141). Also offered as: BIOL709. Credit only granted for: BSCI405, BSCI339J, or BIOL709C. Formerly: BSCI339J. Genetic variation within a population provides the basis for future evolution as well as a record of past evolution. The genomics revolution provides data on this variation that, together with mathematical models, allow us to read this record to reconstruct evolutionary trajectories. Examples will focus on hominin and pathogen evolution. In the lab, students will use models to explore how genetic variation (allele frequencies) changes over time and space.

BSCI 410 Molecular Genetics (3) Prerequisite: BSCI222. And must have completed CHEM233; or (CHEM231 and CHEM232). An advanced genetics course emphasizing the molecular basis of gene structure and function in the context of modern approaches to the genetics of humans and model organisms.

BSCI 411 Bioinformatics and Integrated Genomics (4) Prerequisite: Minimum grade of C- in BSCI222. Recommended: BSCI410. Credit only granted for: BSCI380 or BSCI411. Formerly: BSCI380. Computational methods for the study of biological sequence data in comparative biology and evolution. Analysis of genome content and organization. Database searching, pairwise and multiple sequence alignment, phylogenetic, methods, pattern recognition, and functional inference. Functional and comparative genomics approaches.

BSCI 412 Microbial Genetics (4) Prerequisite: BSCI223 and BSCI222. A laboratory/lecture based course that covers the fundamentals of mutation, mobile genetic elements and transmission genetics of microbial organisms using both classical and molecular approaches.

BSCI 413 Recombinant DNA (3) Prerequisite: BSCI330, BSCI223, or BSCI230; and BSCI222. Formerly: ZOOL452. An advanced course presenting the tools and procedures of genetic engineering. Theory and practical applications of recombinant DNA techniques to understanding eukaryotic gene structure and expression.

BSCI 414 Recombinant DNA Laboratory (3) Prerequisite: BSCI222. An advanced course offering hands-on experience in performing recombinant DNA experiments. All current molecular biology techniques used for cloning prokaryotic genes, analyzing the gene products, and modifying the genes will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

BSCI 415 Molecular Genetics Laboratory (3) Prerequisite: Must have completed or be concurrently enrolled in BSCI410. Restriction: Junior standing or higher. Credit only granted for: BSCI348G or BSCI415. Formerly: BSCI348G. Problem solving laboratory organized around extended projects that employ different approaches toward linking gene and function.

BSCI 416 Human Genetics (3) Prerequisite: Minimum grade of C- in BSCI410. Recommended: BSCI330. Approaches to human genetics and applications to biology and medicine focusing on specific human genetic topics using primary research papers as the main resource.

BSCI 417 Microbial Pathogenesis (3) Prerequisite: BSCI223 and BSCI222. Restriction: Junior standing or higher. Credit only granted for: BSCI348M or BSCI417. Formerly: BSCI348M. Current research in microbial pathogenesis and the molecular and cellular basis of bacterial disease. Comprehensive overview of the molecular basis of pathogenesis with a focus on model microbial systems to illustrate mechanisms of disease pathogenesis. Topics covered: how microorganisms attach to and enter cells; how host cells are damaged by microbial products; how the host responds to invasion; and host-pathogen evolution.

BSCI 420 Cell Biology Lectures (3) Prerequisite: BSCI330, BSCI222, CHEM231, and CHEM232. Credit only granted for: BSCI420 or BSCI421. Molecular and biochemical bases of cellular organization and function in eukaryotes.

BSCI 421 Cell Biology (4) Prerequisite: BSCI330, BSCI222, CHEM231, and CHEM232. Credit only granted for: BSCI420 or BSCI421. Molecular and biochemical basis of cellular organization and function in eukaryotes.

BSCI 422 Principles of Immunology (3) Prerequisite: BSCI223 and BSCI222. Recommended: BSCI330. Restriction: Junior standing or higher. The immune system in health and disease. Presentation and analysis of the cellular and molecular processes that comprise the immune system.

BSCI 423 Immunology Laboratory (2) Prerequisite: BSCI223 and BSCI222. Corequisite: BSCI422. Restriction: Junior standing or higher. Current techniques for assessment of immune status and evaluation of the immune response, including monoclonal antibody production, Western blotting, cytokine assays, ELISA and flow cytometry.

BSCI 424 Pathogenic Microbiology (4) Prerequisite: BSCI223. The role of bacteria and fungi in the diseases of humans with emphasis upon the differentiation and culture of microorganisms, types of disease, modes of disease transmission, prophylactic, therapeutic, and epidemiological aspects.

BSCI 425 Epidemiology and Public Health (3) Prerequisite: BSCI223. History, characteristic features of epidemiology; the important responsibilities of public health; vital statistics.

BSCI 426 Membrane Biophysics (3) Prerequisite: BSCI330; and (PHYS142, PHYS122, or PHYS132); and (MATH130 or MATH140). Quantitative aspects of biology and the use of mathematical descriptions of biological phenomena. The focus will be on membrane structure, transport, and bioenergetics.

BSCI 427 Principles of Microscopy (2) Prerequisite: BSCI421. An introduction to optical principles that underlie light and electron microscopic image formation. Brightfield, darkfield, phase contrast, differential interference contrast, fluorescence and polarized light microscopy. Comparison of light and electron microscopy. The application of these techniques to problems in biological research.

BSCI 430 Developmental Biology (3) Prerequisite: BSCI222 and BSCI330. Structural, functional and regulatory events and mechanisms that operate during development to produce an integrated, multicellular organism composed of a multitude of differentiated cell types.

BSCI 433 Biology of Cancer (3) Prerequisite: BSCI222 and BSCI330; or permission of CMNS-Biological Sciences UG Program. Causes and consequences of neoplastic transformations at the biochemical and cellular levels.

BSCI 434 Mammalian Histology (4) Prerequisite: BSCI330 and BSCI440; or permission of CMNS-Biological Sciences UG Program. A study of the microscopic anatomy, ultrastructure and histophysiology of tissues and organs of mammals.

BSCI 437 General Virology (3) Prerequisite: BSCI222; or permission of CMNS-Biological Sciences UG Program. Restriction: Junior standing or higher. Discussion of the physical and chemical nature of viruses, virus cultivation and assay methods, virus replication, viral diseases with emphasis on the oncogenic viruses, viral genetics, and characteristics of the major virus groups.

BSCI 440 Mammalian Physiology (4) Prerequisite: BSCI330; and (CHEM231 and CHEM232; or must have completed CHEM233). Or permission of CMNS-Biological Sciences UG Program. A study of the cardiovascular, hemopoietic, gastrointestinal, renal and respiratory systems. Chemical and endocrine regulation of physiological functions in mammals. Course does not count as an upper level lab for BIOL majors (see BSCI441).

BSCI 441 Mammalian Physiology Laboratory (2) Prerequisite: Must have completed or be concurrently enrolled in BSCI440. Laboratory exercises in experimental mammalian physiology.

BSCI 442 Plant Physiology (4) Prerequisite: BSCI170 and BSCI171; or BSCI105; or PLSC201. And CHEM231 and CHEM232; or CHEM237; or permission of CMNS-Biological Sciences UG Program. Restriction: Must not have completed ENST407; or must not have completed PLSC400. Also offered as:

PLSC400. Credit only granted for: BSCI442 or PLSC400. A survey of plant physiology and development and responses and adaptation to the environment

BSCI 443 Microbial Physiology (3) Prerequisite: Minimum grade of C- in BSCI223. And minimum grade of C- in BCHM461; or minimum grade of C- in BCHM463. Microbial cellular and population growth. Fermentation metabolism, physiology of anaerobiosis, and energy conservation and transformation in bacterial membranes. Efficiency of energy utilization for growth. Membrane structure and transport. Bacterial chemotaxis. Regulation of bacterial chromosome replication, RNA and protein synthesis. Control of metabolic pathways.

BSCI 446 Neural Systems (3) Prerequisite: Minimum grade of C- in BSCI330 and BSCI353. Neural development, followed by sensory, motor and integrative system organization in the central nervous system.Sponsoring Dept. (BIOL) Specialization Areas: PHNB, GENB.

BSCI 447 General Endocrinology (3) Prerequisite: BSCI330, CHEM241, and CHEM242. Functions and dysfunctions of the endocrine system with special reference to mammals.

BSCI 452 Diseases of the Nervous System (3) Prerequisite: Minimum grade of C- in BSCI330; and minimum grade of C- in BSCI353. Also offered as: NACS728, BIOL708. Credit only granted for: BSCI452, BSCI338N, BIOL708E, or NACS728N. Formerly: BSCI338N. An advanced course covering the neuroanatomy, function, and organization of the nervous system and its implication for pathology and disease.

BSCI 453 Cellular Neurophysiology (3) Prerequisite: Minimum grade of C- in BSCI330, CHEM231, CHEM232, and PHYS122. The cellular and molecular basis of nervous system function.

BSCI 454 Neurobiology Laboratory (1) Prerequisite: Minimum grade of C- in BSCI330; and must have completed or be concurrently enrolled in BSCI353; and must have completed or be concurrently enrolled in PHYS122, PHYS132, or PHYS142. Basic neuroanatomical techniques, intracellular and extracellular recordings of electrical potentials from nerve and muscle.

BSCI 460 Plant Ecology (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. The dynamics of populations as affected by environmental factors with special emphasis on the structure and composition of natural plant communities, both terrestrial and aquatic.

BSCI 461 Plant Ecology Laboratory (2) Prerequisite: Must have completed or be concurrently enrolled in BSCI460. Two or three field trips per semester. The application of field and experimental methods to the qualitative and quantitative study of vegetation and ecosystems.

BSCI 462 Population Ecology (3) Prerequisite: MATH130. And BSCI160 and BSCI161; or BSCI106. Theory of population growth and regulation, life tables, and theory of competition and predation, evolution in ecological settings, community structure and dynamics.

BSCI 463 Laboratory and Field Ecology (2) Prerequisite: Must have completed or be concurrently enrolled in BSCI462; and must have completed or be concurrently enrolled in a course in statistics. Laboratory and field exercises involving problems of contemporary ecological interest; population density regulation, community structure, and spatial pattern diversity in both terrestrial and aquatic systems.

BSCI 464 Microbial Ecology (3) Prerequisite: BSCI223 and CHEM241. And must have completed CHEM243; or CHEM242. Interaction of microorganisms with the environment, other microorganisms and with higher organisms. Roles of microorganisms in the biosphere. Microorganisms and current environmental problems.

BSCI 465 Behavioral Ecology (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. And BSCI222. How natural and social environments shape individual behavior. The influence of evolution on patterns of individual adaptation. Use of the evolutionary paradigm to investigate specific problems in animal and human behavior.

BSCI 467 Freshwater Biology (4) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Biology and ecology of freshwater invertebrates in lotic and lentic habitats, their adaptation to aquatic life, their function in aquatic ecosystems, and their relationship to environmental deterioration. Laboratory will include field trips, demonstrations, and identifications.

BSCI 471 Molecular Evolution (3) Prerequisite: BSCI222; or permission of CMNS-Biology department. Patterns of DNA sequence variation within and between species, caused by nucleotide changes and the movement of transposable elements. Theories of molecular evolution, such as the neutral theory. Molecular clock hypothesis: its importance as a practical empirical tool in molecular genetics and systematics and its theoretical foundation.

BSCI 472 Evolutionary Biology of Plants (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. And BSCI222. Evolution in plant populations. The pace, pattern, and mechanisms of evolution will be discussed within a genetic and ecological framework. Some emphasis will be placed on processes that are unique to the evolution of plants.

BSCI 473 Marine Ecology (3) Prerequisite: BSCI207. Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates; emphasis on testing of theories and on current literature.

BSCI 480 Arthropod Form and Function (4) Prerequisite: Permission of CMNS-Entomology (AGNR). Survey of the morphological, systematic and physiological diversity of the phylum Arthropoda.

BSCI 481 Insect Diversity and Classification (4) Prerequisite: BSCI337. The techniques of collecting insects in the field and their classification into the latest hierarchical scheme. Field trips will visit habitats throughout the state. An insect collection is required.

BSCI 483 Medical and Veterinary Entomology (4) Prerequisite: Permission of CMNS-Biological Sciences UG Program. A study of the morphology, taxonomy, biology and control of the arthropod parasites and disease vectors of man and animals. The ecology and behavior of vectors in relation to disease transmission will be emphasized.

BSCI 485 Protozoology (4) Prerequisite: Must have completed one year of biology. Basic conceptual treatment of free-living and parasitic protozoan functional morphology, life history, and systematics. The laboratory will stress observations of protozoa, living and stained, collected from diverse habits.

BSCI 488 Summer Biology Institutes (1-8) Prerequisite: Permission of CMNS-Biological Sciences UG Program. Repeatable to 12 credits if content differs.

BSCI 493 Medicinal and Poisonous Plants (3) Prerequisite: (BSCI170 and BSCI171; or BSCI105); and must have completed CHEM233. Or 4 credits in BSCI courses. A study of plants important to humans that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

BSCI 494 Animal-Plant Interactions (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. And permission of CMNS-Biological Sciences UG Program. Theoretical, conceptual and applied aspects of the ecological interactions between plants and animals.

BSCI 497 Insect Pests of Ornamentals and Turf (4) The recognition, biology and management of insects and mites injurious to ornamental shrubs, trees, greenhouse crops, and turf. Emphasis on Integrated Pest Management (IPM).

BSCV -- CIVICUS

BSCV 181 Civicus Student and the University (1) Restriction: Freshman standing; and must be in the Civicus program. Credit only granted for: BSOS181 or BSCV181. Formerly: BSOS181. Knowledge and skills designed to utilize CIVICUS to enhance the college experience and preparation for civic engagement.

BSCV 182 Civicus and Service-Learning (1) Prerequisite: BSCV191 and BSCV181; and must have completed or be concurrently enrolled in SOCY105. Restriction: Must be in the Civicus program. Credit only granted for: BSOS182 or BSCV182. Formerly: BSOS182. Students will examine domestic societal issues and their national, regional, and local dimensions from political, economic, and policy perspectives. Students will work with local direct service non-profit organizations.

BSCV 191 Introduction to Civicus (3) Restriction: Must be in the Civicus program. Credit only granted for: BSCV191 or BSOS191. Formerly: BSOS191. An introduction to the social and historical foundations of a civil society. An examination of the roles of individuals, groups, social institutions and community services.

BSCV 301 Leadership in a Multicultural Society (3) Prerequisite: BSCV191, SOCY105, and BSCV181. Restriction: Sophomore standing or higher. Credit only granted for: BSOS301 or BSCV301. Formerly: BSOS301. A study and application of skills, historical context, theories, and concepts for constructive leadership in a pluralistic, multicultural, and diverse society. Social science methodologies and theories will provide the structure for the study of contemporary social problems, civil society issues, and leadership practices.

BSCV 302 Civicus Capstone (3) Prerequisite: BSCV301. Restriction: Sophomore standing or higher. Credit only granted for: BSOS302 or BSCV302. Formerly: BSOS302. Capstone course required for CIVICUS citation. Supervised internship, community service, or research project on civil society topic. Application and continued study of skills and concepts, grounded in the social sciences, relevant to understanding and effectively dealing with contemporary social issues.

BSCV 309 Civicus Seminar (1) Repeatable to 5 credits if content differs. Review and analysis of contemporary social issues.

BSGC -- Global Communities

BSGC 100 The Student in the University: Global Communities (1) Restriction: Must be enrolled in Global Communities Living-Learning Program. By Permission Only (BPO). Students will develop a sense of community within the program, become familiar with campus resources, gain skills and information to prepare for the Global Experience Semester, and explore the surrounding international community.

BSGC 101 Globalization (3) Restriction: Must be in Global Communities Living-Learning program. An interdisciplinary exploration of the historical evolution and contemporary significance of growing interconnectedness in the world. We debate different perspectives on globalization and its impact on social, political, economic and cultural issues.

BSGC 102 Global Issues (3) Prerequisite: BSGC101. Restriction: Must be in Global Communities Living-Learning program. A survey of some of the major global challenges facing society today, such as human trafficking, nuclear security, and global health. We explore contending approaches to resolving problems, culminating in a major group project.

BSGC 302 BSGC 302 Capstone: Global Connections (1) Restriction: Must be in Global Communities Living-Learning program. By permission only (BPO). Additional information: This course is limited to second-year students in the Global Communities Living-Learning Program who have completed or are in the midst of completing their Global Experience requirement. Final component of the Global Communities curriculum. The course connects the global experience with previous BSGC coursework.

BSGC 338 Global Service Abroad (3) Restriction: Permission of Global Communities Living and Learning Program. Repeatable to 6 credits if content differs. Additional information: Prior knowledge of the language of the host country is preferred but not required. The course is open to ALL majors, with preference given to Global Communities students. Community service is a valuable response to social problems faced by marginalized populations. How do we perform valuable and effective service in an international setting? This course is designed to enable students to be thoughtful providers of international service. Students will be introduced to existing responses to social problems and will work to formulate their own individual and collective responses. BSGC 338 was developed with funding from the UMD Stamp Service-Learning Fellowship.

BSGC 386 Experiential Learning in Global Communities: Global Internship (1-3) Restriction: Must be in Global Communities Living-Learning program. Credit only granted for: BSGC398E or BSGC386. Formerly: BSGC398E. Experiential Learning in Global Communities: Global Internship, will give students an opportunity to connect theory with practice.

BSGC 398 BSGC Experiential Learning in Global Communities: Global Service (3) Restriction: Must be in Global Communities Living-Learning program. By permission only (BPO). Repeatable to 6 credits if content differs. Additional information: - Open to students enrolled in the Global Communities Living-Learning Program. Experiential learning is an integral element of the Global Communities program. Students will gain an understanding of social issues in marginalized communities, engage in service-learning, and develop an action plan for civic engagement in a diverse global society.

BSGC 399 Topical Investigations in Global Communities (1-3) Restriction: Must be a current student in Global Communities Living and Learning Program; and permission of instructor. Repeatable to 6 credits if content differs. Additional information: Contact department for information to register for this course. Variable from 1-3 credits and repeatable up to 6 if content varies.

BSOS -- Behavioral and Social Sciences

BSOS 138 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

BSOS 188 Selected Topics in the Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs. Credit only granted for: EDCP108O or BSOS188A. Introductory selected topics course dealing with interdisciplinary issues related to the social sciences.

BSOS 238 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

BSOS 248 Leadership Seminar I (1-6) Repeatable to 9 credits. A topics course in the behavioral and social sciences designed to develop student leaders with skills that will address important issues of the college and offers diverse viewpoints intended to challenge common perceptions of leadership, technology programs and communication.

BSOS 258 Leadership Practicum I (1-6) Repeatable to 9 credits. This course puts into practice the elements and skills learned in the seminar series that directly benefit the college.

BSOS 288 Special Topics in Behavioral and Social Sciences (1-3) Repeatable to 6 credits if content differs. Introductory special topics course focusing on an interdisciplinary topic related to behavioral and social sciences.

BSOS 308 Contemporary Issues: Interdisciplinary Approaches (3) Recommended: Must have Senior standing. Repeatable to 6 credits if content differs. An interdisciplinary analysis of current public policy issues of international, national and community import. Senior standing recommended.

BSOS 338 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

BSOS 348 Leadership Seminar II (1-6) Repeatable to 9 credits. A topics course in the behavioral and social sciences designed to develop student leaders with advanced skills that will address important issues of the college and offers diverse viewpoints intended to challenge common perceptions of leadership, technology programs and communication.

BSOS 355 Social Sciences Internship Practicum (3) Restriction: Must have earned a minimum of 60 credits; and minimum cumulative GPA of 2.5; and must have completed at least 1 semester at UMD. Credit only granted for: BSOS388I or BSOS355. Formerly: BSOS388I. BSOS 355 is an internship course open to all majors. It will enable students to articulate and apply the scholarship from the discipline related to their specific internship placement into a real-work environment.

BSOS 358 Leadership Practicum II (1-6) Repeatable to 9 credits. This course puts into practice the advanced skills and elements learned in the seminar series that directly benefit the college.

BSOS 386 Experiential Learning (3-6)

BSOS 388 Behavioral and Social Sciences Special Topics (1-3) Repeatable to 6 credits if content differs. Advanced special topics course focusing on an interdisciplinary topic related to the Behavioral and Social Sciences.

BSOS 399 Directed Study in Behavioral and Social Sciences (1-6) Guidance for the advanced student capable of interdisciplinary study on special projects under the supervision of the Assistant Dean for Student Affairs.

BSOS 438 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

BSOS 448 Teaching Assistant Practicum (1-6) Repeatable to 9 credits. Supervised practicum for teaching assistants for BSOS/UNIV courses.

BSST -- Terrorism Studies

BSST 230 Terrorism and the Media (3) Credit only granted for: BSOS288T, BSST230, or BSST288T. Formerly: BSOS288T and BSST288T. Student will investigate the interplay between terrorism around the world and mass media content about terrorism. The course will focus both on how news and entertainment media portray terrorism and terrorists, and the effects of terrorism and media portrayal of terrorism on the public and public policy. This course examines terrorism from historical and contemporary perspectives, providing grounds for learning about and discussion of the interplay between terrorism and communication.

BSST 240 Understanding The Principles and Perils of CBRN Weapons (3) Additional information: If taken in the same term as BSST241 these courses will count for General Education Natural Sciences Lab. Explores the 'dark side' of scientific applications. Students will gain an understanding of CBRN Weapons, through the exploration of the scientific method, and certain fundamental principles of chemistry, biology, and physics. Students will also learn how to test hypotheses, use basic statistics, interpret results, and apply their new knowledge through discussions of practical applications in the domains of public health, emergency management, epidemiology, and threat assessment. Bringing these fields together in one class will allow students to better understand the use of and threat from CBRN weapons in terrorism.

BSST 241 Understanding the Principles and Perils of CBRN Weapons (Lab) (1) Corequisite: BSST240. Additional information: This is an optional 1-credit lab course offered in coordination with BSST240. If taken in the same term as BSST240 these courses will count for General Education Natural Sciences Lab. An exploration of the threat of Chemical, Biological, Radiological, and Nuclear (CBRN) weapons aimed to provide students with a basic, multidisciplinary, natural science foundation in chemistry, biology, and physics.

BSST 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

BSST 288 Special Topics in Terrorism Studies (3) Repeatable to 9 credits if content differs. A special topics course for students in the Global Terrorism Minor program. Topics that may be offered are Psychology of Terrorism; Development of Counterterrorism Policies and Programs; Terrorism and Popular Culture; Terrorism and the Media; International Perspective on Terrorism and Counterterrorism (Education Abroad); The Evolution of Hezbollah; Terrorism and Small Wars; Political Islam in the West.

BSST 327 Introduction to Terrorism and the Terrorist Threat (1) Recommended: It is recommended that BSST330 be taken in the same semester as as BSST329. Restriction: Restricted to students enrolled in the Global Terrorism Minor (#BS07). Credit only granted for: BSST327 OR BSST399K. Formerly: BSST399K. This course focuses on bringing current events and policy issues related to terrorism and

counterterrorism, as they are discussed in mass media, into the dialogue with academic theories and research. Through a discussion-based seminar, students will bring current, terrorism-related events to classroom discussion, where they will consider the media-framed current events in relation to academic research. Students will be continually challenged to draw connections between terrorism-related events in the news and relevant academic research.

BSST 330 Terrorist Motivations and Behaviors (3) Restriction: Must be in the Global Terrorism minor; or special permission available for students in other Global Studies minors. Explores theories explaining the formation of terrorist groups and the motivations behind terrorist behavior, building upon theories from social psychology, sociology, political science, criminology, and history.

BSST 331 Response to Terrorism (3) Restriction: Must be in the Terrorism Studies minor program. Explores the manners in which a variety of different actors respond to both terrorist incidents and the threat of terrorism. Examines local responses to terrorists incidents; local impacts of terrorism including effects on individual and group attitudes and behaviors; policy decisions made in response to both terrorist attacks and the threat of terrorism; terrorism prevention, deterrence, interdiction, and mitigation efforts; and individual and community recovery from terrorist attacks.

BSST 332 The Practice of Terrorism Studies (5) Prerequisite: BSST330 and BSST331. Restriction: Must be in the Terrorism Studies minor program. Capstone course for students in the Global Terrorism Minor. Explores in-depth rigorous approaches to conducting research on terrorism and to developing policy on terrorism and counterterrorism. Examines the interplay between terrorism research and counterterrorism policy. All students will participate in an internship or complete a substantive original research project alongside the courses weekly seminar meeting.

BSST 334 States of Emergency (3) Students will explore the manner in which crises unfold from the perspective of a variety of emergency response disciplines, including: emergency management, law enforcement, intelligence analysis, cyber analysis, risk communication, health and human services, and emergency psychiatry/psychology. Students will participate in a semester-long simulation of an unfolding terrorist attack.

BSST 335 Innovations in Countering Violent Extremism (3) Credit only granted for: BSST335 or BSST338V. Formerly: BSST338V. Develop solutions to community-based radicalization through a blend of entrepreneurial, Design Thinking strategies and terrorist disengagement theories. Students will design original programs targeting real-world, at-risk communities and present their programs to a panel of experts.

BSST 338 Special Topics in Terrorism Studies (3) Repeatable to 9 credits if content differs. A special topics course for students in the Global Terrorism Minor program. Topics that may be offered are Psychology of Terrorism; Development of Counterterrorism Policies and Programs; Terrorism and Popular Culture; Terrorism and the Media; International Perspective on Terrorism and Counterterrorism (Education Abroad); The Evolution of Hezbollah; Terrorism and Small Wars; Political Islam in the West.

BSST 340 Oral Communication for National Security Careers (3) Credit only granted for: BSST340 or BSST338E. Formerly: BSST338E. Students will discuss perspectives on strategic communication and national security, while discussing and practicing public speaking skills and developing proficiency in three genres of security-related briefings. Students will work with the technical, scientific, and/or specialized data, vocabularies, processes, and products of the academic disciplines and/or fields of expertise relevant to national and international security careers.

BSST 358 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

BSST 370 Terrorist Financing Analysis and Counterterrorist Finance (3) Credit only granted for: BSST370 or BSST338Z. Formerly: BSST338Z. This course will discuss terrorist financial activities, initiatives focused on countering those financial activities, and sanctions policy. This course approaches these topics through various techniques including, structured analytic tools, such as weighted ranking methods, scenario trees, causal flow diagramming, hypothesis testing, utility analysis, as well as game theory and logic will be incorporated into the course to provide students a better framework to form analytic judgments. At the end of the course, students will have gained a solid foundational understanding of the financing and counter-financing of terrorists.

BSST 372 Terrorist Hostage Taking (3) Examines different forms of hostage taking, drawing on theory and research from across a range of different fields, including international relations, political science, criminology, psychology, sociology and economics. We will consider these events in terms of how they are similar, how they differ and what they are designed to achieve. This course provides insights into the complicated nature of terrorism via hostage taking in order to broaden student understanding of current events. This course also gives students practical experience in finding and coding data, and studying complex human behaviors.

BSST 386 Experiential Learning in Terrorism Studies (1-5) Repeatable to 10 credits. This course will supplement student's experiential learning experience, or internship in the field of terrorism studies and homeland security with guided reflection on their experiences.

BSST 398 Individual Study in Terrorism Studies II (1-3) Repeatable to 9 credits if content differs. An independent study course for START Students.

BSST 399 Individual Study in Terrorism Studies (1-3) Repeatable to 9 credits if content differs. An independent study course for students in the Global Terrorism Minor program.

BSST 458 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS -- Criminology and Criminal Justice

CCJS 100 Introduction to Criminal Justice (3) Introduction to the administration of criminal justice in a democratic society, with emphasis on the theoretical and historical development of law enforcement. The principles of organization and administration for law enforcement; functions and specific activities; planning and research; public relations; personnel and training; inspection and control; direction; policy formulation.

CCJS 105 Introduction to Criminology (3) Criminal behavior and the methods of its study; causation; typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.

CCJS 158 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS 188 Topics in Criminology and Criminal Justice (3) Prerequisite: CCJS100 or CCJS105. Repeatable to 6 credits if content differs. Contemporary and emerging crimes and the response to them by criminal justice agencies. Emphasis is on the emergence of new forms of crimes or criminals.

CCJS 200 Statistics for Criminology and Criminal Justice (3) Prerequisite: CCJS100 or CCJS105. And 1 course with a minimum grade of C- from (STAT100, MATH107, MATH111, MATH120, MATH130, MATH140); or must have completed MATH220 with a minimum grade of C-. Restriction: Must be in Criminology and Criminal Justice program; or permission of BSOS-Criminology & Criminal Justice department. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Introduction to descriptive and inferential statistics, graphical techniques, and the computer analysis of criminology and criminal justice data. Basic procedures of hypothesis testing, correlation and regression analysis, and the analysis of continuous and binary dependent variables. Emphasis upon the examination of research problems and issues in criminology and criminal justice.

CCJS 225 Responses to Violence (3) Conflict is unfortunately resolved through violence in a number of settings. It ranges from interpersonal to international in its scope. This course investigates the strengths and weakness of a number of resolutions to reducing violence over the course of history using both state centered and informal control.

CCJS 226 Out of Lock Up: Breaking the Cycle (3) Offender reentry in the United States. Examination of experiences of prisoners during and after incarceration. Research on the experiences of special offending populations including females, juveniles, and young adults. Exploration of reentry challenges, historical trends, policy, and practice.

CCJS 230 Criminal Law in Action (3) Prerequisite: CCJS100. Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of criminal acts. Classification and analysis of selected criminal offenses.

CCJS 234 Law of Criminal Investigation (3) Prerequisite: CCJS100 and CCJS230. General principles and theories of criminal procedure. Due process. Arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.

CCJS 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS 278 Special Topics in Criminology and Criminal Justice (3) Repeatable to 6 credits if content differs. Topics of special interest to undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest. May be delivered online.

CCJS 288 Special Topics in Law and Justice (3) Prerequisite: CCJS105 and CCJS230. Repeatable to 6 credits if content differs. An analysis of recent developments in criminal law and their implications for criminal justice systems and research. Focus will be on Supreme Court decisions and legislative initiatives.

CCJS 300 Criminological and Criminal Justice Research Methods (3) Prerequisite: CCJS100 and CCJS105; and (PSYC200, CCJS200, ECON321, BMGT230, or SOCY201). Introduction to the formulation of research questions covering crime and justice, research designs, data collection, and interpretation and reporting in criminological and justice-system settings.

CCJS 310 Criminal Investigations (3) Prerequisite: CCJS100 and CCJS230. An introduction to modern methods used in detection, investigation, and solution of crime. Students will be taught basic and advanced investigative techniques utilized by law enforcement agencies. Analysis of actual cases will be used to demonstrate practical uses of these techniques.

CCJS 320 Introduction to Criminalistics (3) Prerequisite: CCJS100 and CCJS230. An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence in a crime laboratory, including fingerprints and other impressions, firearms ID and ballistics, hairs and fibers, document examination, and use of polygraph.

CCJS 325 Slavery in the Twenty First Century: Combating Human Trafficking (3) Credit only granted for: CCJS325 or CCJS498R. Formerly: CCJS498R. The trafficking of human beings in its historical, legal, economic, political and social contexts. Scope of the global problem, different forms of human trafficking, and regional trends and practices. Roles of government, the international community and individual actors. Strategies to combat trafficking.

CCJS 330 Contemporary Criminological Issues (3) Prerequisite: CCJS100 and CCJS105. Topics may include career criminals, prison overcrowding, prediction, ecological studies of crimes, family and delinquency, entrepreneurship in criminal justice and criminology, and similar criminological problems.

CCJS 331 Contemporary Legal Policy Issues (3) Prerequisite: CCJS100 and CCJS230. In-depth examination of selected topics. Criminal responsibility. Socio-legal policy alternatives with regard to deviance. Law enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

CCJS 332 Major Transitions: From Undergraduate to Professional (1) Restriction: Must be in Criminology and Criminal Justice program; and sophomore standing or higher. This course is designed to assist criminology and criminal justice students explore career opportunities. Topics will include: graduate school, law school, career opportunities in federal, state, local, and public agencies, resume writing, and internships.

CCJS 340 Policing (3) Prerequisite: CCJS100; or students who have taken courses with comparable content may contact the department. Critical issues relating to policing. Topics include police discretion, role of police, use of force, misconduct, police research, administration, personnel, and etc.

CCJS 342 Corrections (3) Prerequisite: CCJS100. Credit only granted for: CCJS342 or CCJS452. Examination of the American correctional system. Identification of historical and contemporary themes, issues, and trends. Evaluation of correctional policies, practices and research.

CCJS 345 Courts and Sentencing (3) Prerequisite: CCJS100. Contemporary issues in the American court system such as prosecution, sentencing and punishment. Theoretical perspectives on courtroom decision-making integrated with empirical research. Courts and sentencing processes, including initial charging, pretrial detention and final sentencing outcomes. Innovations in courts and sentencing.

CCJS 346 Domestic Violence (3) Prerequisite: CCJS100. Credit only granted for: CCJS346 or CCJS498Y. Formerly: CCJS498Y. A thorough and critical examination of family violence. Topics include the historical background to family violence, methods of studying this serious issue, elder abuse, child abuse, the cultural factors involved in intimate partner violence, violence in same-sex relationships, and the criminal justice response to family violence. Although the course focuses on the American family, illustrations from other cultures are provided.

CCJS 350 Juvenile Delinquency (3) Prerequisite: CCJS105. Credit only granted for: CCJS 350 or CCJS 450. Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention; organization and social responsibility of law enforcement.

CCJS 352 Drugs and Crime (3) Prerequisite: CCJS100. An analysis of the role of criminal justice in the control of drug use and abuse.

CCJS 358 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS 359 Field Training in Criminology and Corrections (1-6) Restriction: Permission of BSOS-Criminology & Criminal Justice department. Repeatable to 6 credits. Supervised field training in public or private social agencies. Group meetings, individual conferences and written program reports.

CCJS 360 Victimology (3) Prerequisite: CCJS105. Overview of the history and theory of victimology. Analysis of victimization patterns with special emphasis on types of victims and crimes. The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the services offered to the victim.

CCJS 370 Race, Crime and Criminal Justice (3) Prerequisite: CCJS100; or students who have taken courses with comparable content may contact the department. Role and treatment of racial/ethnic minorities in the criminal justice system. Course will provide students with historical and theoretical framework for understanding this dynamic.

CCJS 386 Experiential Learning (3-6) Restriction: Permission of BSOS-Criminology & Criminal Justice department; and junior standing or higher.

CCJS 388 Independent Reading Course in Criminology and Criminal Justice (3) Prerequisite: CCJS100 and CCJS105. Restriction: Must be in the Honors program. Designed for the needs of honor students in criminology and criminal justice.

CCJS 389 Independent Research in Criminology and Criminal Justice (1-6) Prerequisite: CCJS105. Restriction: Must be in CCJS Honors Program. Repeatable to 6 credits if content differs. Independent Research for CCJS Departmental Honors students.

CCJS 398 Law Enforcement Field Training (1-6) Restriction: Permission of BSOS-Criminology & Criminal Justice department. Repeatable to 6 credits. Supervised, structured and focused field training in law enforcement agencies.

CCJS 399 Independent Study in Criminology and Criminal Justice (1-3) Restriction: Permission of BSOS-Criminology & Criminal Justice department. Repeatable to 6 credits. Integrated reading or research under direction and supervision of a faculty member.

CCJS 400 Criminal Courts (3) Prerequisite: CCJS100 and CCJS300; or permission of BSOS-Criminology & Criminal Justice department. Criminal courts in the United States at all levels; judges, prosecutors, defenders, clerks, court administrators, and the nature of their jobs; problems facing courts and prosecutors today and problems of administration; reforms.

CCJS 418 Seminar in Criminology and Criminal Justice (3) Repeatable to 18 credits if content differs. Selected topics of interest in the field of Criminology and Criminal Justice will be covered.

CCJS 432 Law of Corrections (3) Prerequisite: CCJS100, CCJS105, CCJS230, and CCJS300. A review of the law of criminal corrections from sentencing to final release or release on parole. Probation, punishments, special treatments for special offenders, parole and pardon, and the prisoner's civil rights are also examined.

CCJS 440 Security Administration (3) Prerequisite: CCJS100 and CCJS340. Credit only granted for: CCJS440 or CCJS498Z. Formerly: CCJS498Z. Designed to introduce students to the complex issues of Security Administration and the critical terrorism issues facing the nation. Emphasis is placed on understanding the historical and contemporary issues effecting U.S. Counterterrorism Policy. It also explores the challenges facing today's security administrators including: ethics, classified information, intelligence, terrorist organizations and incidents, physical and personnel security, transportation and border security issues.

CCJS 444 Advanced Law Enforcement Administration (3) Prerequisite: CCJS100 and CCJS340. The structuring of manpower, material, and systems to accomplish the major goals of social control. Personnel and systems management. Political controls and limitations on authority and jurisdiction.

CCJS 450 Advanced Juvenile Delinquency (3) Prerequisite: CCJS105 and CCJS300. Credit only granted for: CCJS350 or CCJS450. Examination of juvenile delinquency in the United States. Nature and extent of juvenile delinquency, historical approaches, sociological and criminological theories and research, social contexts including the institutions of families, schools, and peers, and social responses. Prevention, punishment, and treatment programs, both within and outside of the juvenile justice and criminal justice systems.

CCJS 451 Crime and Delinquency Prevention (3) Prerequisite: CCJS105 and CCJS300. Methods and programs in prevention of crime and delinquency.

CCJS 452 Treatment of Criminals and Delinquents (3) Prerequisite: CCJS105 and CCJS300. Credit only granted for: CCJS 342 or CCJS 452. Processes and methods used to modify criminal and delinquent behavior.

CCJS 453 White Collar and Organized Crime (3) Prerequisite: CCJS300; and (CCJS350 or CCJS105). Definition, detection, prosecution, sentencing and impact of white collar and organized crime. Special consideration given to the role of federal law and enforcement practices.

CCJS 454 Contemporary Criminological Theory (3) Prerequisite: CCJS300 and CCJS105. Examination of the main theoretical accounts that explain the underlying causes of criminal behaviors. Explore how individual choices, socialization experiences, biological factors and social structure affect criminal behaviors.

CCJS 455 Dynamics of Planned Change in Criminal Justice I (3) Prerequisite: CCJS300. Restriction: Permission of BSOS-Criminology & Criminal Justice department. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on the development of innovative ideas using a research and development approach to change.

CCJS 456 Dynamics of Planned Change in Criminal Justice II (3) Prerequisite: CCJS455; or permission of BSOS-Criminology & Criminal Justice department. An examination of conceptual and

practical issues related to planned change in criminal justice. Emphasis on change strategies and tactics which are appropriate for criminal justice personnel in entry level positions.

CCJS 458 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CCJS 461 Psychology of Criminal Behavior (3) Prerequisite: CCJS105; or students who have taken courses with comparable content may contact the department. And CCJS300. Biological, environmental, and personality factors which influence criminal behaviors. Biophysiology and crime, stress and crime, maladjustment patterns, psychoses, personality disorders, aggression and violent crime, sex-motivated crime and sexual deviations, alcohol and drug abuse, and criminal behavior.

CCJS 489 Honors Thesis Research (3) Prerequisite: CCJS100 and CCJS105. Restriction: Limited to CCJS Departmental Honors students. Designed for students completing their honors thesis.

CCJS 498 Selected Topics in Criminology and Criminal Justice (3) Repeatable to 6 credits if content differs. Topics of special interest to advanced undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest.

CHBE -- Chemical and Biomolecular Engineering

CHBE 101 Introduction to Chemical and Biomolecular Engineering (3) Prerequisite: CHEM135; or students who have taken courses with comparable content may contact the department. Corequisite: MATH141. Restriction: Must be in Engineering: Chemical program; or permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE101 or ENCH215. Formerly: ENCH215. Introduction to methods of chemical engineering calculations and analysis. Stoichiometric relations, material and energy balances, and behavior of gases, vapors, liquids and solids. Analytical and computer methods.

CHBE 250 Computer Methods in Chemical Engineering (3) Prerequisite: CHBE101; and must have completed or be concurrently enrolled in MATH241. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE250 or ENCH250. Formerly: ENCH250. Algorithm development and application of software to the analysis of chemical engineering problems. File management and editing, graphics and numerical methods. Use of spreadsheets, statistics/math software and process simulators for the design of chemical process equipment.

CHBE 301 Chemical and Biomolecular Engineering Thermodynamics I (3) Prerequisite: CHBE101; and must have completed or be concurrently enrolled in CHBE250 and MATH241. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH300 or CHBE301. Formerly: ENCH300. Principles of thermodynamics and their application to engineering problems. First and second laws of thermodynamics, properties of gases, liquids and solids, phase equilibrium, flow and non-flow systems, energy conversion, production of work from heat, thermodynamic analysis of processes, equilibrium stage operations and the thermodynamics of chemically reacting systems.

CHBE 302 Chemical and Biomolecular Engineering Thermodynamics II (3) Prerequisite: CHBE301. Corequisite: CHBE250. Restriction: Must be in a major within ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE302 or ENCH400. Formerly: ENCH400.

Contemporary trends in chemical engineering thermodynamics that bridge the gap between fundamentals and applications. Thermodynamic analysis of non-ideal and structured systems; such as complex fluids, strongly fluctuating and nanoscale systems, dissipative systems, biosystems, and systems under extreme conditions.

CHBE 333 Chemical Engineering Seminar (1) Restriction: Junior standing; and must be in a major within ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE333 or ENCH333. Formerly: ENCH333. To develop oral communication skills through a series of class presentations of current chemical engineering topics.

CHBE 410 Statistics and Design of Experiments (3) Prerequisite: Minimum grade of C- in CHBE250, MATH241, and MATH246. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE410 or ENCH476. Formerly: ENCH476. An introduction to probability, statistics, and design of experiments for chemical engineers.

CHBE 422 Chemical and Biomolecular Engineering Transport Phenomena I (3) Prerequisite: Minimum grade of C- in CHBE101, CHBE250, MATH241, and MATH246. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE422 or ENCH422. Formerly: ENCH422. Principals of fluid dynamics as applied to model development and process design. Mass, momentum and energy conservation. Statics and surface tension. Equation of Continuity and Navier-Stokes Equation with application to laminar flow. Dimensional analysis. Macroscopic balances, Bernoulli Equation and friction factors with application to turbulent flow.

CHBE 424 Chemical and Biomolecular Engineering Transport Phenomena II (3) Prerequisite: CHBE422. Corequisite: CHBE302. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE424 or ENCH424. Formerly: ENCH424. Principles of mass and heat transfer as applied to model development and process design. Species continuity equation with application to diffusion, and convection in laminar flow. Macroscopic balances and mass transfer coefficients with application to turbulent flow. Microscopic equation of energy with application to heat conduction, and convection in laminar flow. Macroscopic energy balance and heat transfer coefficients with application to turbulent flow. Heat exchanger design.

CHBE 426 Chemical and Biomolecular Separation Processes (3) Corequisite: CHBE302; and CHBE424. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE426 or ENCH426. Formerly: ENCH426. Separation by stages operations. Rate dependent separation processes. Design application in distillation, gas absorption, liquid extraction, drying, adsorption and ion exhange.

CHBE 437 Chemical and Biomolecular Engineering Laboratory (3) Prerequisite: CHBE424, CHBE426, and CHBE440. Restriction: Must be in a major within ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE437 or ENCH437. Formerly: ENCH437. Application of chemical engineering process and unit operation principals in small-scale semi-commercial equipment. Data from experimental observations are used to evaluate performance and efficiency of operations. Emphasis on correct presentation of results inreport form.

CHBE 440 Chemical Kinetics and Reactor Design (3) Prerequisite: Minimum grade of C- in CHBE301, MATH241, and MATH246. Restriction: Must be in Engineering: Chemical program; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE440 or ENCH440. Formerly: ENCH440. Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors. Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions. Catalytic reactor design.

CHBE 442 Chemical and Biomolecular Systems Analysis (3) Prerequisite: CHBE424 and CHBE426. Credit only granted for: CHBE442 or ENCH442. Formerly: ENCH442. Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.

CHBE 444 Process Engineering Economics and Design I (3) Prerequisite: CHBE424, CHBE426, and CHBE440. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE444 or ENCH444. Formerly: ENCH444. Principles of chemical engineering economics and process design. Equipment sizing and costing. Economic evaluation of projects. Flowsheet synthesis. Introduction to flowsheet simulators and concepts of flowsheet optimization. Synthesis of Heat Exchanger Networks and Distillation Sequences.

CHBE 446 Process Engineering Economics and Design II (3) Prerequisite: CHBE442 and CHBE444. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE446 or ENCH446. Formerly: ENCH446. Application of chemical engineering principles for the design of chemical processing equipment. Representative problems in the design of chemical plants will be the focus of this capstone design class. Comprehensive reports are required.

CHBE 451 Photovoltaics: Solar Energy (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468L or CHBE451. Formerly: ENCH468L. The emphasis of the class is on developing a conceptual understanding of the device physics and manufacturing processes of crystalline and thin-film photovoltaic cells, and to develop elementary computational skills necessary to quantify solar cell efficiency. The class material includes detailed, system-level energy balances necessary to understand how solar energy fits into the complete energy generation, conversion, and storage picture. Quantitative comparisons of PV technology to solar chemical conversion processes and biofuels are made.

CHBE 453 Applied Mathematics and Distributive Parameter Systems (3) Credit only granted for: CHBE453 or ENCH453. Formerly: ENCH453. Mathematical techniques applied to the analysis and solution of chemical engineering problems. Use of differentiation, integration, differential equations, partial differential equations and integral transforms. Application of infinite series, numerical and statistical methods.

CHBE 454 Chemical Process Analysis and Optimization (3) Credit only granted for: CHBE454 or ENCH454. Formerly: ENCH454. Application of mathematical models to the analysis and optimization of chemical processes. Models based on transport, chemical kinetics and other chemical engineering principles will be employed.

CHBE 455 Model Predictive Control (3) Credit only granted for: CHBE455 or ENCH455. Formerly: ENCH455. Empirical model identification from process data. Step and impulse response models. Linearization of nonlinear first principles models. Single variable Model Predictive Control. Robustness

with respect to modeling error. MPC based tuning of PID controllers. Feedforward control. Multi-input multi-output processes. Multi-loop decentralized control. Centralized multivariable Model Predictive Control via on-line optimization.

CHBE 468 Research (1-3) Restriction: Permission of Chemical and Biomolecular Engineering Department; and must be third or fourth year student; and must have minimum GPA of 3.0; and must have successfully completed all lower level engineering, science and mathematics courses for the major. Repeatable to 6 credits. Formerly: ENCH468. Investigation of a research project under the direction of a faculty member. Comprehensive reports are required.

CHBE 470 The Science and Technology of Colloidal Systems (3) Prerequisite: CHBE424, CHBE426, and CHEM482. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE470 or ENCH470. Formerly: ENCH470. Introduction to colloidal systems. Preparation, stability and coagulation kinetics of colloidal suspensions. Introduction to DLVO theory, electrokinetic phenomena, rheology of dispersions, surface/interfacial tension, solute absorption at gas-liquid, liquid-liquid, liquid-solid and gas-solid interfaces and properties of micelles and other microsturctures.

CHBE 471 Particle Science and Technology (3) Prerequisite: Knowledge of undergraduate engineering thermodynamics, and transport phenomena; knowledge of numerical methods for solving systems of ordinary differential equations. Restriction: Must be in a major within ENGR-Chemical & Biomolecular Engineering department; or permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE471 or ENCH471. Formerly: ENCH471. Particles are everywhere. We breathe them, eat them, and use them to make many non-particulate materials. Knowledge of particle science and technology is important for manufacturing, for occupational health and safety, as well as environmental considerations. In this multidisciplinary course, the focus will be on the study of science and technology relevant to multiphase systems consisting of solid and/or liquid particles surrounded by a gas. These topics fall loosely under the headings of powder and aerosol technology. Team design projects will be an integral component.

CHBE 472 Control of Air Pollution Sources (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Sources and effects of air pollutants, regulatory trends, atmospheric dispersion models, fundamentals of two-phase flow as applied to air pollution and air pollution control systems, design of systems for control of gases and particulate matter.

CHBE 473 Electrochemical Energy Engineering (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468K or CHBE473. Formerly: ENCH468K. The lecture will start from the basic electrochemical thermodynamics and kinetics, with emphasis on electrochemical techniques, fundamental principle and performance of batteries, and supercapacitors.

CHBE 475 Ethics in Science and Engineering (3) Credit only granted for: CHBE475 or ENCH475. Formerly: ENCH475. Ethical issues in science and engineering and their resolutions are examined. The main topics will be ethics and scientific truth (including issues of proper data analysis, proper data presentation, and record-keeping), ethics and other scientists and engineers (including issues of attribution, confidentiality, conflicts of interest, mentoring, and inclusion of under-represented groups), ethics and the practice of engineering (including responsibilities of engineers to clients, ecological issues, and conflicts of interest), and ethics and society (including funding priorities, moral issues, and human and animal subjects). Class meetings will be organized around discussions, case studies, and student

reports. The course is aimed at postdoctoral students, graduate students and advanced undergraduate students who wish to ponder the important contemporary questions about the ethics of how science and engineering get done.

CHBE 476 Molecular Modeling Methods (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468P or CHBE476. Formerly: ENCH468P. Statistical mechanics will be introduced to give the fundamental background for atomic to mesoscale molecular modeling. Classical atomic-level simulations methods (Monte Carlo and Molecular Dynamics) and the procedures to develop intra- and intermolecular potentials will be covered. This course will also discuss the theory and application of coarse-grained molecular simulations, mesoscale simulations and other modern simulation techniques. A broad range of applications will be included throughout the semester, e.g., phase behavior of small molecules, kinetics, and biophysics.

CHBE 477 Mesoscopic and Nanoscale Thermodynamics (3) Prerequisite: A prior course in classical thermodynamics. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE477 or ENCH468Q. Formerly: ENCH468Q. Interdisciplinary course primarily for graduate and senior undergraduate students from engineering or science departments. New emerging technologies deal with bio-membrane and gene engineering, microreactor chemistry and microcapsule drug delivery, micro-fluids and porous media, nanoparticles and nanostructures, supercritical fluid extraction and artifical organs. Engineers often design processes where classical thermodynamics may be insufficient, e.g., strongly fluctuating and nanoscale systems, or dissipative systems under conditions far away from equilibrium.

CHBE 480 Bionanotechnology: Physical Principles (3) Prerequisite: BIOE120; or (BSCI170 and BSCI171); or BSCI105. And BCHM461; or students who have taken courses with comparable content may contact the department. Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Physics at nano/micro scales. Biomolecular building blocks. Simplest biomolecular assembly: protein folding. Nanoscale intermolecular interactions important for biology. Protein-ligand binding. Protein higher-order assembly: filaments, networks. Protein filaments and motility. DNA, RNA and their assembly assisted by proteins. Viral capsid assembly. Lipid assembly into micelles, bilayers. Lipid-protein co-assembly in membranes. Lipid and polymer structures useful in medicine. Targeted delivery of drugs, genes by nano/micro structures. Cellular assembly in the eye, in insect wings. Cellular assembly at surfaces: gecko feet, duck feathers. Cellular assembly in the presence of crystals: biomineralization.

CHBE 481 Transport Phenomena in Small and Biological Systems (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468W or CHBE481. Formerly: ENCH468W. Interdisciplinary course primarily for senior undergraduate and graduate students from engineering or science departments. The course's main goal is to make the students familiar with the fundamental physics and modeling of transport phenomena in small and biological systems, and their current scientific and engineering utilization in microfluidics, nanofluidics and biological systems.

CHBE 482 Biochemical Engineering (3) Prerequisite: CHBE440. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE482 or ENCH482. Formerly: ENCH482. Introduction to biochemical and microbiological applications to commericail and engineering processes, including industrial fermentation, enzymology, ultrafiltration, food and pharmaceutical processing and resulting waste treatment. Enzyme kinetics, cell growth, energetics and mass transfer.

CHBE 483 Bioseparations (3) Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH483 or CHBE483. Formerly: ENCH483. Engineering fundamentals of separations and purification of biological molecules. Case studies and examples illustrate principles and practice of centrifugation, precipitation, crystallization, filtration, membrane separations, chromatography, and affinity separation of recombinant proteins and other biomolecules. Process scale-up and economics of biotechnology products and processes.

CHBE 484 Metabolic Pathway Engineering (3) Prerequisite: CHBE101 and CHBE440. Restriction: Permission of ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: ENCH468M or CHBE484. Formerly: ENCH468M. The state-of-the-art in metabolic engineering, with a focus on the analysis and engineering of metabolic pathways through (chemical) engineering principles, will be covered. Topics covered include: (1) overview of biochemistry and metabolism; (2) metabolic flux analysis and isotope labeling illustrated with examples from the recent scientific literature; (3) technologies for engineering metabolic pathways; (4) metabolic control analysis and pathway regulation; (5) applications of metabolic engineering to synthesis of biofuels and therapeutics; (6) specialized and related subjects such as protein engineering and synthetic biology.

CHBE 485 Biochemical Engineering Laboratory (3) Credit only granted for: CHBE485 or ENCH485. Formerly: ENCH485. Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors, and the demonstration of separation techniques such as ultrafiltration and affinity chromatography.

CHBE 486 Heterogeneous Catalysis for Energy Applications (3) Prerequisite: Minimum grade of C- in CHBE302, CHBE424, and CHBE440; and permission of instructor. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department. Credit only granted for: CHBE486 or ENCH686. Introduction to heterogeneous catalytic science and technology for energy conversion and hydocarbon processing. Preparation and mechanistic characterization of catalyst systems, kinetics of catalyzed reactions, adsorption and diffusion influences in heterogenious reactions. An overview of heterogeneous catalysis in various energy-related applications, including petroleum refining, chemicals from biomass, valorization of shale gas, and CO2 utilization will be introduced.

CHBE 487 Tissue Engineering (3) Prerequisite: Must have completed at least one biology course; and MATH241. Recommended: BSCI330 and BIOE340. Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; or permission of ENGR-Chemical & Biomolecular Engineering department. Also offered as: BIOE411. Credit only granted for: BIOE411, CHBE487, or ENCH468T. Formerly: ENCH468T. A review of the fundamental principles involved in the design of engineered tissues and organs. Both biological and engineering fundamentals will be considered.

CHBE 490 Polymer Science (3) Also offered as: ENMA495. Credit only granted for: CHBE490, ENCH490, or ENMA495. Formerly: ENCH490. The elements of the polymer chemistry and industrial polymerization, polymer structures and physics, thermodynamics of polymer solutions, polymer processing methods, and engineering applications of polymers.

CHBE 495 Nanoparticle Aerosol Dynamics and Particle Technology (3) Restriction: Must be in a major within the ENGR-Chemical & Biomolecular Engineering department; and permission of ENGR-Chemical & Biomolecular Engineering department. NanoParticles (NA) (< 100 nm), and their science and technology play an important role in nature and industry. From air quality standards, nuclear reactor safety, inhalation therapy, workplace exposure, global climate change, to counterterrorism, aerosols play a central role in our environment. On the industrial side, NA plays an integral part of reinforcing fillers,

pigments and catalysts, and the new emerging field of nanotechnology, they are the building blocks to new materials, which encompass, electronic, photonic and magnetic devices, and bio and chemical sensors.

CHBE 496 Processing and Engineering of Polymers (3) Credit only granted for: CHBE496 or ENCH496. Formerly: ENCH496. A comprehensive analysis of processing and engineering techniques for the conversion of polymeric materials into useful products. Evaluation of the performance of polymer processes, design of polymer processing equipment.

CHEM -- Chemistry

CHEM 131 Chemistry I - Fundamentals of General Chemistry (3) Prerequisite: Must have math eligibility of MATH120, MATH130, or MATH140. Corequisite: CHEM132. Recommended: For Science majors. Credit only granted for: CHEM103, CHEM131, CHEM135, CHEM153 or CHEM146. Formerly: CHEM103. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM131 is the first course in a four-semester sequence for students majoring in the sciences, other than Chemistry and Biochemistry majors.

CHEM 132 General Chemistry I Laboratory (1) Corequisite: CHEM131. Credit only granted for: CHEM103, CHEM132, CHEM136, CHEM143, CHEM147 or CHEM177. Formerly: CHEM103. Introduction to the quantification of chemical substances, including the concept of the mole and chemical stoichiometry. Additional work involves the synthesis of ionic substances and their qualitative characterization. Must be taken concurrently with CHEM131.

CHEM 134 Chemical Principles for Engineering (1) Prerequisite: Minimum grade of C- in CHEM131; or minimum grade of C- in CHEM146. Credit only granted for: CHEM 134 or CHEM 135. Basic chemistry for engineering students. Introduction to organic structures and polymers, gas laws, liquids, solids, phase changes, chemical kinetics and electrochemistry.

CHEM 135 General Chemistry for Engineers (3) Prerequisite: Must have math eligibility of MATH120, MATH130, or MATH140. Credit only granted for: CHEM103, CHEM113, CHEM131, CHEM135, or CHEM146. The nature and composition of matter, solutions, chemical reactions, equilibria, and electrochemistry, with applications to various fields of engineering.

CHEM 136 General Chemistry Laboratory for Engineers (1) Prerequisite: Must have completed or be concurrently enrolled in CHEM135. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. A laboratory course for engineering majors intending to take CHEM231 and CHEM232.

CHEM 146 Principles of General Chemistry (3) Prerequisite: Must have math eligibility of MATH140 or higher. Corequisite: CHEM147. Restriction: Must be in one of the following programs (Chemistry; Biochemistry). Credit only granted for: CHEM103, CHEM131, CHEM135, CHEM143, or CHEM146. Formerly: CHEM143. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM146 is the first course in a four-semester sequence for Chemistry and Biochemistry majors.

CHEM 177 Introduction to Laboratory Practices and Research in the Chemical Sciences (2) Corequisite: CHEM146, CHEM131, or CHEM135. Restriction: Must be in a major within CMNS-Chemistry & Biochemistry department; or permission of CMNS-Chemistry & Biochemistry department.

Credit only granted for: CHEM132, CHEM136, CHEM147, or CHEM177. First semester laboratory course required for CHEM and BCHM majors. Introduction to laboratory techniques, including safety practices, scientific ethics, and presentation of current research topics.

CHEM 231 Organic Chemistry I (3) Prerequisite: CHEM131, CHEM135, or CHEM146; and (CHEM132, CHEM136, CHEM147, or CHEM177); and a grade of C- or better in the prerequisites is required of College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: CHEM232. Credit only granted for: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly: CHEM233. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters and spectroscopy.

CHEM 232 Organic Chemistry Laboratory I (1) Prerequisite: CHEM131 and CHEM132; or (CHEM135 and CHEM136); or (CHEM146 and CHEM147). And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: CHEM231. Credit only granted for: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly: CHEM233. Provides experience in developing some basic laboratory techniques, recrystallization, distillation, extraction, chromatography.

CHEM 237 Principles of Organic Chemistry I (4) Prerequisite: CHEM131, CHEM135, or CHEM146; and (CHEM132, CHEM136, or CHEM147); and a grade of C- or better in the prerequisites is required of College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Or permission of CMNS-Chemistry & Biochemistry department. Restriction: Must be in one of the following programs (Chemistry; Biochemistry) ; or must be in a major in ENGR-A. James Clark School of Engineering. Credit only granted for: CHEM233, (CHEM231 and CHEM232), or CHEM237. The chemistry of carbons: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters, and spectroscopy.

CHEM 241 Organic Chemistry II (3) Prerequisite: CHEM231 and CHEM232; or CHEM237. And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Credit only granted for: CHEM241, CHEM243 or CHEM247. Formerly: CHEM243. A continuation of CHEM231 with emphasis on molecular structure; substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

CHEM 242 Organic Chemistry Laboratory II (1) Prerequisite: CHEM231 and CHEM232; or CHEM237. And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: CHEM241. Credit only granted for: CHEM243 or CHEM247. Formerly: CHEM243. Synthetic organic chemistry through functional group manipulation, introduction to instrumentation essential to analysis and structure elucidation.

CHEM 247 Principles of Organic Chemistry II (4) Prerequisite: Minimum grade of C- in CHEM237; or permission of CMNS-Chemistry & Biochemistry department. Restriction: Must be in one of the following programs (Chemistry; Biochemistry) ; or must be an honors student. Credit only granted for: CHEM243 or CHEM247. A continuation of CHEM237 with emphasis on molecular structure, substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

CHEM 271 General Chemistry and Energetics (2) Prerequisite: CHEM241 and CHEM242; or CHEM247. And a grade of C- or better in the prerequisites for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: CHEM272. Credit only granted for: CHEM113, CHEM153, CHEM271 or CHEM276. Formerly: CHEM113. An introduction to the

physical aspects of chemistry; chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

CHEM 272 General Bioanalytical Chemistry Laboratory (2) Prerequisite: CHEM241 and CHEM242; or CHEM247. And a grade of C- or better in the prerequisites is required for College of Computer, Mathematical, and Natural Sciences majors and recommended for all students. Corequisite: CHEM271. Credit only granted for: CHEM227, CHEM272 or CHEM277. An introduction to analytical chemistry with an emphasis on bio-analytical instrumentation and techniques.

CHEM 276 General Chemistry and Energetics - Majors (2) Prerequisite: Minimum grade of C- in CHEM241 and CHEM242; or minimum grade of C- in CHEM247. Corequisite: CHEM277. Restriction: Must be in one of the following programs (Chemistry; Biochemistry). Credit only granted for: CHEM113, CHEM153, CHEM271 or CHEM276. Formerly: CHEM153. An introduction to the physical aspects of chemistry for Biochemistry and Chemistry majors. Chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

CHEM 277 Fundamentals of Analytical and Bioanalytical Chemistry Laboratory (3) Prerequisite: Minimum grade of C- in CHEM241 and CHEM242; or minimum grade of C- in CHEM247. Corequisite: CHEM276. Restriction: Must be in one of the following programs (Chemistry; Biochemistry). Credit only granted for: CHEM153, CHEM227, CHEM272 or CHEM277. Quantitative analysis, inorganic analytical chemistry, and an introduction to bio-analytical instrumentation and techniques.

CHEM 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

CHEM 389 Pedagogy and Instruction in Chemistry (1-2) Prerequisite: Permission of instructor; and minimum grade of B- in CHEM231; and must have completed or be concurrently enrolled in CHEM241. Repeatable to 6 credits. Methodologies, theory and educational tools applicable to the field of undergraduate chemistry education. Examples covered will use content from introductory general and organic chemistry courses.

CHEM 395 Professional Issues in Chemistry and Biochemistry (1) Restriction: Junior standing or higher; and must be in one of the following programs (Chemistry; Biochemistry). Seminar on professional issues. Professional responsibilities, ethics, interview techniques, career opportunities, graduate/professional school, race and gender issues.

CHEM 398 Special Projects (2) Honors projects for undergraduate students.

CHEM 399 Introduction to Chemical Research (1-3) Restriction: Junior standing or higher; and permission of CMNS-Chemistry & Biochemistry department. Repeatable to 6 credits. Basic (chemical) research conducted under the supervision of a faculty member.

CHEM 401 Inorganic Chemistry (3) Prerequisite: CHEM276 or CHEM271; and (CHEM247 or CHEM241). An overview of basic concepts of the electronic structure of the elements, chemical bonding and reactivity, from simple diatomic molecules to coordination compounds. These are viewed from simple (Lewis) to the most comprehensive molecular orbital theory. Symmetry and group theory are used throughout the course.

CHEM 403 Radiochemistry (3) Prerequisite: Must have completed one year of college chemistry and one year of college physics. Radioactive decay; introduction to properties of atomic nuclei; nuclear processes in cosmology; chemical, biomedical and environmental applications of radioactivity; nuclear processes as chemical tools; interaction of radiation with matter.

CHEM 425 Instrumental Methods of Analysis (4) Prerequisite: CHEM272 and CHEM271; or (CHEM276 and CHEM277). Modern instrumentation in analytical chemistry. Electronics, spectroscopy, chromatography and electrochemistry.

CHEM 433 Atmospheric Chemistry and Climate (3) Prerequisite: CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Chemistry & Biochemistry department. Also offered as: AOSC433. Credit only granted for: AOSC433, AOSC633, CHEM433, or CHEM633. Formerly: CHEM434. The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate change, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.

CHEM 441 Advanced Organic Chemistry (3) Prerequisite: Must have completed or be concurrently enrolled in CHEM481; and 1 course with a minimum grade of C- from (CHEM241, CHEM247). Also offered as: CHEM641. An advanced study of the compounds of carbon, with special emphasis on molecular orbital theory and organic reaction mechanisms.

CHEM 460 Structure Determination Using Spectroscopic Methods (3) Prerequisite: Must have completed CHEM243; or CHEM247; or (CHEM241 and CHEM242). Formerly: CHEM660. The use of infrared, ultraviolet-visible, proton and carbon-13 nuclear magnetic resonance and mass spectroscopy for structure determination in organic chemistry.

CHEM 471 Techniques in Pulse NMR (1) Prerequisite: CHEM241 and CHEM242; or CHEM247. Recommended: CHEM460. Restriction: Senior standing or higher. Additional information: Persons with heart pacemakers and/or metal implants cannot take the course due to potential health hazards. NMR techniques to operate, adjust, and calibrate the spectrometers and acquire and process NMR data in one and two dimensional NMR applications.

CHEM 474 Environmental Chemistry (3) Prerequisite: CHEM481. The sources of various elements and chemical reactions between them in the atmosphere and hydrosphere are treated. Causes and biological effects of air and water pollution by certain elements are discussed.

CHEM 481 Physical Chemistry I (3) Prerequisite: Minimum grade of C- in CHEM135; or minimum grade of C- in CHEM271 and CHEM272; or minimum grade of C- in CHEM276 and CHEM277. And minimum grade of C- in MATH141. And minimum grade of C- in PHYS260 and PHYS261; or minimum grade of C- in PHYS141. Thermodynamics and kinetics of chemical and molecular systems. Topics may include internal energy, heat, work, enthalpy, entropy, free energy, and spontaneity as well as reaction order, differential rate laws, integrated rate laws, and rate laws for multi-step processes.

CHEM 482 Physical Chemistry II (3) Prerequisite: Minimum grade of C- in CHEM481. Quantum mechanical nature of atoms and molecules. Topics may include model systems for electronic, vibrational,

rotational and translational energies as well as connections to molecular spectroscopy and thermal distributions.

CHEM 483 Physical Chemistry Laboratory I (2) Prerequisite: Must have completed or be concurrently enrolled in CHEM481. An introduction to the principles and application of quantitative techniques in physical chemical measurements. Experiments will be coordinated with topics in CHEM481.

CHEM 484 Physical Chemistry Laboratory II (2) Prerequisite: CHEM481 and CHEM483; and must have completed or be concurrently enrolled in CHEM482. A continuation of CHEM 483. Advanced quantitative techniques necessary in physical chemical measurements. Experiments will be coordinated with topics in CHEM 482.

CHEM 498 Special Topics in Chemistry (3) Prerequisite: Prerequisite varies with the nature of the topic being considered.

CHEM 633 Atmospheric Chemistry and Climate (3) Prerequisite: CHEM131, CHEM135, or CHEM146. And MATH241; or permission of CMNS-Chemistry & Biochemistry department. Also offered as: AOSC633. Credit only granted for: AOSC433, AOSC633, CHEM433, or CHEM633. Formerly: CHEM678A. The effects of human activity on atmospheric composition, focused on global warming, the carbon cycle, air pollution, and the ozone layer. Fundamentals of atmosphereic chemistry (spectroscopy, kinetics, isotopic analysis, and biogeochemical cycles) are related to the modern understanding of climate chane, air quality, and ozone depletion, based on resources such as satellite missions, field campaigns, and scientific assessments published by international agencies. We also examine how society's energy needs could be met, in the future, in a manner with less impact on atmospheric composition than the present heavy reliance on combusion of fossil fuels.

CHIN -- Chinese

CHIN 101 Intensive Elementary Chinese I (6) Prerequisite: Must have attained appropriate Foreign Language Placement Test (FLPT) score. Introduction to speaking, reading, and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns.

CHIN 102 Elementary Spoken Chinese (3) Prerequisite: CHIN101; or students who have taken courses with comparable content may contact the department; or must have attained appropriate Foreign Language Placement Test (FLPT) score. Corequisite: CHIN103. Additional information: Must be taken in conjunction with CHIN 103. Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation.

CHIN 103 Elementary Written Chinese (3) Prerequisite: CHIN101; or students who have taken courses with comparable content may contact the department; or must have attained appropriate Foreign Language Placement Test (FLPT) score. Corequisite: CHIN102. Additional information: Must be taken in conjunction with CHIN102. Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing.

CHIN 105 Elementary Chinese - Accelerated Track (3) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed CHIN103, CHIN102, or CHIN101. Accelerated instruction in Mandarin Chinese at the elementary level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CHIN 201 Intermediate Spoken Chinese I (3) Prerequisite: CHIN102; or must have attained appropriate Foreign Language Placement Test (FLPT) score. Corequisite: CHIN202. Additional information: Must be taken in conjunction with CHIN202. Emphasis on development of conversational skills with vocabulary build-up and controlled conversation.

CHIN 202 Intermediate Written Chinese I (3) Prerequisite: CHIN103; or must have attained appropriate Foreign Language Placement Test (FLPT) score. Corequisite: CHIN201. Additional information: Must be taken in conjunction with CHIN201. Reading and writing skills with emphasis on grammar and Chinese characters.

CHIN 203 Intermediate Spoken Chinese II (3) Prerequisite: CHIN201; or students who have taken courses with comparable content may contact the department; or must have attained appropriate Foreign Language Placement Test (FLPT) score. Corequisite: CHIN204. Additional information: Must be taken in conjunction with CHIN204. Continuation of CHIN201.

CHIN 204 Intermediate Written Chinese II (3) Prerequisite: CHIN202; or students who have taken courses with comparable content may contact the department; or must have attained appropriate Foreign Language Placement Test (FLPT) score. Corequisite: CHIN203. Additional information: Must be taken in conjunction with CHIN203. Continuation of CHIN202.

CHIN 205 Intermediate Chinese - Accelerated Track (3) Prerequisite: Must have attained appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed CHIN201, CHIN203, CHIN202, or CHIN204. Accelerated instruction in Mandarin Chinese at the intermediate level for students with prior Chinese language background, either through home use or formal instruction.

CHIN 213 Chinese Poetry into English: An Introduction (3) Issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets. No knowledge of Chinese required.

CHIN 214 Introduction to Chinese Literature (3) Introduction to Chinese literature in its historical context. Readings include different genres of Chinese literatures such as Confucius, Du Fu and Lu Xun, medical texts, sutras, maps, gazettes. Taught in English.

CHIN 215 Introduction to Chinese Philosophy (3) Additional information: Course is taught in English. No previous knowledge of Chinese philosophy and history will be assumed and no prerequisites are required. How should one make moral choices? What is the best way to live a moral life? How should the state be organized to best encourage proper human behavior? And what happens if the state comes to be formed as an empire? What are the proper moral ways to respond? Questions such as these were at the heart of early Chinese philosophical debates (roughly fifth through first centuries BCE). This course will be study of how the early Chinese thinkers wrestled with these questions and what responses they gave. As we will quickly see, the views that arose in early China were among the most powerful and influential in human history. Regardless of whether one agrees with these views or not, they should be studied and taken seriously by anyone who cares about ethics and politics.

CHIN 220 Beginning Chinese Calligraphy (3) Introduction to techniques, history, and culture of Chinese calligraphy. Extensive hands-on practice. Taught in English.

CHIN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CHIN 301 Advanced Chinese I (3) Prerequisite: CHIN202; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors. Readings in expository and fictional writing with conversation and composition.

CHIN 302 Advanced Chinese II (3) Prerequisite: CHIN301; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors. Continuation of CHIN301.

CHIN 305 Life in China through TV Plays I (3) Prerequisite: CHIN203 and CHIN204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Using authentic Chinese language material in short TV plays to learn about society and life in China.

CHIN 306 Life in China through TV Plays II (3) Prerequisite: CHIN305; or permission of ARHU-School of Languages, Literatures, and Cultures department. Continuation of CHIN305 using authentic Chinese language material in TV plays to learn about society and life in China.

CHIN 307 Linguistic Landscape of China (3) Prerequisite: Must have completed CHIN204 or above; or permission of Chinese Program Advisor. Comprehensive introduction to Chinese and other major languages in the Sino-Tibetan, Altaic, Austroasiatic, and Austronesian families, all of which are spoken in China. Taught in English.

CHIN 313 Chinese Poetry and Prose in Translation (3) Writing of the major poets, essayists, and historians from the 10th century B.C. to the 12th century A.D. No knowledge of Chinese is required.

CHIN 315 Modern Chinese Literature in Translation (3) Major works of fiction and drama from 1920 to the present read in the context of social and literary change. Emphasis on western and traditional Chinese influences on the writers and their works. No knowledge of Chinese required.

CHIN 321 Classical Chinese I (3) Prerequisite: CHIN207; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: CHIN321 or CHIN403. Formerly: CHIN403. Introductory classical Chinese using literacy and historical sources in the original language.

CHIN 322 Classical Chinese II (3) Prerequisite: CHIN403 and CHIN321; or permission of ARHU-School of Languages, Literatures, and Cultures department. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

CHIN 331 Chinese Calligraphy: Theory and Practice (3) Prerequisite: CHIN220; or permission of instructor. History of the writing system; major scripts, modes, and styles. Intermediate brushwork and lectures on the culture. Characters for practice selected to correspond to lecture topics. Taught in English.

CHIN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CHIN 386 Experiential Learning (3-6) Prerequisite: Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

CHIN 388 Topics in Chinese Literature in Translation (3) Repeatable to 6 credits if content differs. Analysis of significant themes and structures in Chinese literature. No knowledge of Chinese required.

CHIN 389 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

CHIN 401 Readings in Modern Chinese I (3) Prerequisite: CHIN302; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors. Readings in history, politics, economics, sociology, and literature. Emphasis on wide-ranging, rapid reading, reinforced by conversations and compositions.

CHIN 402 Readings in Modern Chinese II (3) Prerequisite: CHIN401; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors. Continuation of CHIN401.

CHIN 408 Selected Readings in Classical Chinese (3) Prerequisite: CHIN321; and must have knowledge of Pinyin. Repeatable to 9 credits if content differs. Selected readings in Classical Chinese, including important representative works of history, poetry, and parallel prose. Close attention is paid to matters of grammar and phonology in the readings. Content will differ each time this course is offered.

CHIN 411 Business Chinese I (3) Prerequisite: CHIN402; or permission of ARHU-School of Languages, Literatures, and Cultures department. And must have taken a placement interview offered by the department for Non-majors. Conversation, reading, and writing applicable to Chinese business transactions, social meetings, and meetings with government organizations, plus background material in English on professional business practices and social customs associated with business.

CHIN 412 Business Chinese II (3) Prerequisite: CHIN402; or permission of ARHU-School of Languages, Literatures, and Cultures department. And must have taken a placement interview offered by the department for Non-majors. Continuation of CHIN411.

CHIN 415 Readings in Current Newspapers and Periodicals (3) Prerequisite: CHIN402; or students who have taken courses with comparable content may contact the department. And must have taken a placement interview offered by the department for Non-majors. Reading of periodical literature on selected topics with discussions and essays in Chinese.

CHIN 418 Special Topics in Contemporary Chinese Fiction and Film (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 12 credits if content differs. Various approaches to the most recent textual productions of China and Taiwan. Taught in Chinese.

CHIN 421 Theory of Chinese Phonetics and Phonology - Introduction (3) Prerequisite: Must have completed CHIN302 or higher. Introduction to theories, terminology, and practical techniques for describing and analyzing Chinese speech sounds and their functions in the language. Taught in English.

CHIN 422 Chinese Grammar (3) Prerequisite: CHIN302; or permission of ARHU-School of Languages, Literatures, and Cultures department. Chinese sentence patterns studied and contrasted with English and in terms of current pedagogical as well as linguistic theories. Taught in English and Chinese.

CHIN 428 Selected Topics in Chinese Linguistics (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Sophomore standing or higher. Repeatable to 12 credits if content differs. Undergraduate seminar in Chinese linguistics. Topics may include the ancient writing system, historical phonology, dialectology, prosody and rhyming, grammar and the history of the language as a whole. This course may be repeated with different content, and satisfies the linguistics requirement for the Chinese major. Students are expected to be in at least Third Year Chinese. Taught in English.

CHIN 429 Selected Topics in Chinese Studies (3) Prerequisite: CHIN315. Repeatable to 6 credits if content differs. In-depth study of a particular aspect of Chinese cultural, linguistic, literary studies. Specific topic to be announced when course is offered. Taught in English.

CHIN 441 Traditional Chinese Fiction (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Major works of fiction from the 4th century tales of the marvelous through the 19th century Qing novel. Readings are in classical Chinese and English. Designed for students with advanced language skills. Taught in English.

CHIN 443 Cultural Histories of Medicine in China (3) Restriction: Permission of department, School of Languages, Literatures and Cultures. Investigates medical knowledge through traditional Chinese approaches to the body and beliefs about healing, including acupuncture, herbal medicine, prayer, ritual and folk medicine. Taught in English.

CHIN 499 Directed Study in Chinese (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Readings in Chinese under faculty supervision.

CLAS -- Classics

CLAS 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CLAS 170 Greek and Roman Mythology (3) Also offered as: RELS170. Credit only granted for: CLAS170 or RELS170. Additional information: This course cannot be taken for language credit. An introduction to the mythology of ancient Greece and Rome. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism. Taught in English.

CLAS 171 Classical Myths in Europe (1) The role which Classical Myths have played in the arts, architecture and politics of a major European city. This will only be offered through the study abroad program.

CLAS 180 Discovering the World of Ancient Greece (3) An exploration of the cultural traits and developments of ancient Greek civilization and its forerunners, from the Bronze Age Mycenaeans and Minoans, through the rise of the classical Greek city-states, to the expansion of Greek cultural influence in the wake of the conquests of Alexander the Great. Drawing upon the evidence of the archaeological remains as well as ancient historical and literary documents, students gain a basic familiarity with the

principal monuments and artifacts of classical Greek civilization, the various institutions and values that characterized the Greeks, and the significant historical events that transformed the culture over the course of antiquity.

CLAS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CLAS 270 Greek Literature in Translation (3) Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry. No knowledge of Greek or Latin is required.

CLAS 275 Why do we laugh? (3) An introduction to the breadth and complexity of humor's role in society. Students will familiarize themselves with the explanations that various disciplines have offered about what makes us laugh, and analyze the major impact humor has in our understanding of who we are and how we see our world.

CLAS 305 Archaeological Methods and Practice (3) Prerequisite: ANTH240, ARTH200, or CLAS180. Also offered as: ANTH305, ARTH305. Credit only granted for: ANTH305, ARTH305, or CLAS305. A team-taught, interdisciplinary course discussing theories, methods, and ethical issues in the practice of archaeology.

CLAS 308 The Classics in Context (1-3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 9 credits if content differs. A Study Abroad course which introduces students to the topography, archaeology and culture of the ancient Mediterranean world.

CLAS 309 Special Topics in Classical Literature (3) Repeatable to 9 credits if content differs. Readings in translation.

CLAS 310 Ancient Philosophy (3) Prerequisite: 6 credits in CLAS courses; or 6 credits in PHIL courses. Credit only granted for: CLAS310 or PHIL310. The origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato and Aristotle.

CLAS 311 Inventing Ancient Greek Culture (3) Who were the ancient Greeks, and were they the founders of Western civilization? The course examines the foundations of ancient Greece. Through an analysis of the historical, archaeological, and linguistic evidence, it sheds light on the so-called Black Athena Controversy, which raised doubts about the ancient Greek contribution to Western culture. The course also focuses on the impact of modern identity politics on scholarly discussions of antiquity and the ways in which the Culture Wars of the 1980s and 1990s have influenced analyses of the ancient Greek world.

CLAS 315 Greek and Roman Athletics (3) The origin and evolution of athletics in ancient Greece and Rome studied as recreation, as play, as education, as a profession and as mass entertainment.

CLAS 320 Women in Classical Antiquity (3) Also offered as: WMST320. Credit only granted for: CLAS320 or WMST320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

CLAS 330 Ancient Greek Religion: Gods, Myths, Temples (3) Also offered as: RELS370. Credit only granted for: CLAS330 or RELS370. Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.

CLAS 331 Roman Religion: From Jupiter to Jesus (3) Formerly: CLAS309J. Survey of the major institutions of Roman state and private religion and of the diverse religions, including Judaism and Christianity, practiced in the Roman empire.

CLAS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CLAS 370 Classical Myths in America (3) Prerequisite: CLAS170. Restriction: Sophomore standing or higher. Credit only granted for: CLAS370 or HONR269W. Formerly: HONR269W. The role which Greek and Roman Myths have played in American culture and politics.

CLAS 374 Greek Tragedy in Translation (3) Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.

CLAS 375 Ancient Comedy (3) Representative plays by Aristophanes, Menander, Plautus and Terence in translation; examination of Greek tradition in Roman and postclassical periods.

CLAS 380 Archaeological Fieldwork in Greece (4) Credit only granted for: CLAS369K or CLAS380. Formerly: CLAS369K. Students will learn about the archaeology, history and culture of Greece by participating in the archaeological investigations at Kenchreai, the eastern port of ancient Corinth. Students will learn about data analysis, artifact processing, and conservation, all important components in archaeological fieldwork. This program also gives students a rare chance to live and to learn in one of the most archaeologically rich, historically important, and naturally beautiful regions in Greece, the northeastern Peloponnese. Students will visit sites and museums throughout this region, attend seminars, and experience life in a small village. In this way they will learn not only about the practice of archaeological field research, but also about Greek history and culture from ancient to modern times. While the course focuses on southern Greece during the Roman Empire and Late Antiquity, a period of prosperity and diversity at Kenchreai and in its broader area, students will also explore cultural and historical developments that influenced other regions and longer periods, from the Bronze Age to the Modern era, including religion and cult-practice, art and iconography, settlement and the environment, and the construction of identity.

CLAS 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

CLAS 409 Classics Capstone Seminar (3) Restriction: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs. Comparative study of selected central aspects of both ancient Greek and Roman cultures as viewed from the standpoints of literary study, history, art history, and other fields as appropriate. Seminar format involving intensive student research.

CLAS 419 The Classical Tradition (3) Repeatable to 9 credits if content differs. Credit only granted for: CLAS419 or CLAS420. Formerly: CLAS420. Examination of the role of Greek and Roman civilization in shaping the arts and ideas of western culture.

CLAS 470 Approaches to Greek Mythology (3) Prerequisite: CLAS170; or permission of ARHU-Classics department. Ancient and modern approaches to understanding Greek myth as expression of human experience, including interpretations drawn from psychology, anthropology, and comparative mythology.

CLAS 488 Independent Study in Classical Civilization (3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs.

CLAS 495 Senior Thesis in Classics (3) Prerequisite: Permission of ARHU-Classics department. Prior departmental approval of research topic is required.

CLAS 499 Independent Study in Classical Languages and Literatures (1-3) Prerequisite: Permission of ARHU-Classics department.

CMLT -- Comparative Literature

CMLT 235 Black Diaspora Literature and Culture (3) Credit only granted for: CMLT235 or ENGL235. Examination of key works by writers of the African Diaspora. Relationship among black people across multiple geographic spaces; Africa, the Caribbean, the United States, Europe, Latin America, and Asia. Specific historical, cultural, and literary contexts; themes such as gender, sexuality, migration, slavery, freedom, and equality. Readings may include literary texts (fiction, poetry, drama), music and film. All readings in English, but drawn from multiple languages of the black diaspora, including English, Spanish, French and Portuguese.

CMLT 242 Introduction to Jewish Literature (3) Also offered as: JWST272. Credit only granted for: HEBR231, JWST272, or CMLT242. Formerly: HEBR231. A survey of Jewish literature and introduction to methods of reading literature in general and Jewish literature in particular. Concern with what makes a literary corpus Jewish and other issues of canonicity. All texts in English translation.

CMLT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CMLT 270 Global Literature and Social Change (3) Comparative study of literature through selected literary works from several non-Western cultures, viewed cross-culturally in light of particular social, political, and economic perspectives.

CMLT 275 World Literature by Women (3) Also offered as: WMST275. Credit only granted for: CMLT275 or WMST275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

CMLT 277 Literatures of the Americas (3) Comparative study of several North, South, and Central American cultures with a focus on the specificities, similarities, and divergences of their literary and cultural texts.

CMLT 280 Film Art in a Global Society (3) Comparative study of a variety of film traditions from around the world, including cinema from Hollywood, Europe, Asia and developing countries, with a stress on different cultural contexts for film-making and viewing.

CMLT 285 American Indians in Literature and Film: Perspectives North and South (3) Credit only granted for: CMLT285, CMLT298N, and LASC248N. Formerly: CMLT298N. Introduction to indigenous peoples of North America, Central America and South America. Native peoples of the Americas contextualized in their specific environments. Cultural adaptations and cultural expressions emphasized for Arctic, Chesapeake, Mayan territory, and Andes regions. Readings of scientific literature, film, and narrative. Comparison of images in photographs and films. Discussion of European-based legislation for and about indigenous peoples from sixteenth century Spain to contemporary U.S. legislation.

CMLT 298 Topics in Comparative Studies (3-6) Repeatable to 9 credits if content differs.

CMLT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

CMLT 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-English department.

CMLT 398 Special Topics in Comparative Studies (3) Repeatable to 9 credits if content differs. Special topics in comparitive studies.

CMLT 469 The Continental Novel (3) The novel in translation from Stendhal through the existentialists, selected from literatures of France, Germany, Italy, Russia, and Spain.

CMLT 479 Major Contemporary Authors (3)

CMLT 488 Genres (3) Repeatable to 6 credits if content differs. A study of a recognized literary form, such as tragedy, film, satire, literary criticism, comedy, tragicomedy, etc.

CMLT 489 Major Writers (3) Each semester two major writers from different cultures and languages will be studied. Authors will be chosen on the basis of significant relationships of cultural and aesthetic contexts, analogies between their respective works, and the importance of each writer to his literary tradition.

CMLT 498 Selected Topics in Comparative Studies (3)

CMSC -- Computer Science

CMSC 100 Bits and Bytes of Computer Science (1) Restriction: For first time freshmen and first time transfer computer science majors. Students are introduced to the field (and disciplines) of computer science within a small classroom setting. They will learn to make a successful transition from high school to the university, while exploring study skills, student success plans and research opportunities.

CMSC 102 Introduction to Information Technology (3) Restriction: Must not be in Computer Science program; and must not have completed CMSC122 or CMSC131; and not recommended for BMGT students. Credit only granted for: CMSC102, CMSC132 or CMSC214 unless CMSC102 is taken first, then credit will be granted for both. A historical and practical introduction to computer and network terminology, applications and concepts. Students will have hands-on experience with a variety of tools available to find and access information on the Internet, to exchange information between computers, and to perform basic web design. Students will explore applications (such as browsers and spreadsheets) as

well as different computing environments (such as Windows and UNIX). There will be discussions of social, legal, and ethical issues related to technology.

CMSC 106 Introduction to C Programming (4) Prerequisite: MATH115. Restriction: Must not be in Computer Science program; and must not have completed any courses from CMSC131-499 course range. Design and analysis of programs in C. An introduction to computing using structured programming concepts. Intended for students with no or minimal programming experience.

CMSC 122 Introduction to Computer Programming via the Web (3) Restriction: Must not have completed any courses from CMSC131-499 course range; and must not be concurrently enrolled in CMSC131. Credit only granted for: CMSC122 or CMSC198N. Formerly: CMSC198N. Introduction to computer programming in the context of developing full featured dynamic web sites. Uses a problem solving approach to teach basics of program design and implementation using JavaScript; relates these skills to creation of dynamic web sites; then explores both the potential and limits of web-based information sources for use in research. Intended to help relate a student's major to these emerging technologies.

CMSC 131 Object-Oriented Programming I (4) Corequisite: MATH140; and permission of CMNS-Computer Science department. Introduction to programming and computer science. Emphasizes understanding and implementation of applications using object-oriented techniques. Develops skills such as program design and testing as well as implementation of programs using a graphical IDE. Programming done in Java.

CMSC 132 Object-Oriented Programming II (4) Prerequisite: Minimum grade of C- in CMSC131; or must have earned a score of 5 on the A Java AP exam. Or permission of the department based on satisfactory performance on the department placement exam; and minimum grade of C- in MATH140; and permission of CMNS-Computer Science department. Introduction to use of computers to solve problems using software engineering principles. Design, build, test, and debug medium -size software systems and learn to use relevant tools. Use object-oriented methods to create effective and efficient problem solutions. Use and implement application programming interfaces (APIs). Programming done in Java.

CMSC 198 Special Topics in Computer Science for Non-Majors (1-4) Restriction: Must not be in Computer Science program. Repeatable to 6 credits if content differs. A course designed to allow non-computer science majors and non-computer engineering majors to pursue a specialized topic or project.

CMSC 216 Introduction to Computer Systems (4) Prerequisite: Minimum grade of C- in CMSC132; and minimum grade of C- in MATH141. Corequisite: CMSC250. Credit only granted for: CMSC212, (CMSC213 and CMSC313), or CMSC216. Machine representation of data including integers and floating point. Modern computer architectural features and their interaction with software (registers, caches). Interaction between user programs and the OS: system class, process, and thread management. Optimizing software to improve runtime performance using both compilers and hand turning.

CMSC 250 Discrete Structures (4) Prerequisite: Minimum grade of C- in CMSC131; and minimum grade of C- in MATH141. Restriction: Permission of CMNS-Computer Science department. Formerly: CMSC150. Fundamental mathematical concepts related to computer science, including finite and infinite sets, relations, functions, and propositional logic. Introduction to other techniques, modeling and solving problems in computer science. Introduction to permutations, combinations, graphs, and trees with selected applications.

CMSC 297 Honors Seminar (1) An introduction to the breadth of computer science research. Intended for all Computer Science Honors students, especially those considering a career in research. Will cover work from some of the key figures in the history of computer science, as well as research being pursued at Maryland.

CMSC 298 Special Topics in Computer Science (1-4) Restriction: Permission of CMNS-Computer Science department. Repeatable to 6 credits if content differs. A course designed to allow a lower level student to pursue a specialized topic or project.

CMSC 320 Introduction to Data Science (3) Prerequisite: Minimum grade of C- in CMSC216 and CMSC250. Restriction: Permission of CMNS-Computer Science department. An introduction to the data science pipeline, i.e., the end-to-end process of going from unstructured, messy data to knowledge and actionable insights. Provides a broad overview of several topics including statistical data analysis, basic data mining and machine learning algorithms, large-scale data management, cloud computing, and information visualization.

CMSC 330 Organization of Programming Languages (3) Prerequisite: Minimum grade of C- in CMSC250 and CMSC216; and permission of CMNS-Computer Science department. The semantics of programming languages and their run-time organization. Several different models of languages are discussed, including procedural (e.g., C, Pascal), functional (e.g., ML, LISP), rule-based (e.g., Prolog), and object-oriented (e.g., C++, Smalltalk). Run-time structures, including dynamic versus static scope rules, storage for strings, arrays, records, and object inheritance are explored.

CMSC 351 Algorithms (3) Prerequisite: Minimum grade of C- in CMSC250 and CMSC216; and permission of CMNS-Computer Science department. Credit only granted for: CMSC251 or CMSC351. Additional information: CMSC351 may not count as one of the required upper level CMSC courses for students who are required to have 24 upper level CMSC credits for graduation, i.e. for students who became computer science majors prior to Fall, 2002. A systematic study of the complexity of some elementary algorithms related to sorting, graphs and trees, and combinatorics. Algorithms are analyzed using mathematical techniques to solve recurrences and summations.

CMSC 389 Special Topics in Computer Science (1-3) Repeatable to 6 credits if content differs. Seminar courses that allow students to pursue new and emerging areas of Computer Science; course may be used as electives for the undergraduate degree and minor.

CMSC 390 Honors Paper (3) Restriction: Must be admitted to the Computer Science Honors Program. Special study or research directed toward preparation of honors paper.

CMSC 396 Computer Science Honors Seminar (1) Prerequisite: Must have admission into Computer Science Departmental Honors Program. Restriction: Permission of CMNS-Computer Science department. Credit only granted for: CMSC297 or CMSC396. Formerly: CMSC297. Overview of computer science research activities, techniques, and tools. Diverse research areas will be covered, including systems, networks, artificial intelligence, human-computer interaction, software engineering, graphics, vision, and theory.

CMSC 402 Bioinformatic Algorithms and Methods for Functional Genomics and Proteomics (3) Prerequisite: Minimum grade of C- in CMSC330 and CMSC351; and permission of CMNS-Computer Science department. An introduction to the fundamental concepts in the computational analysis of biological systems with applications to: functional genomics, population genetics, proteomics and epigenetics. Computational concepts covered: network and graph algorithms, combinatorial algorithms,

machine learning, large data/network visualization, statistical modeling and inference, probabilistic graphical models, sparse methods in data analysis, numerical optimization. No prior knowledge of biology required.

CMSC 411 Computer Systems Architecture (3) Prerequisite: Minimum grade of C- in CMSC330; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Restriction: Permission of CMNS-Computer Science department. Credit only granted for: ENEE446 or CMSC411. Input/output processors and techniques. Intra-system communication, buses, caches. Addressing and memory hierarchies. Microprogramming, parallelism, and pipelining.

CMSC 412 Operating Systems (4) Prerequisite: 1 course with a minimum grade of C- from (CMSC414, CMSC417, CMSC420, CMSC430, CMSC433, CMSC435, ENEE440). Restriction: Permission of CMNS-Computer Science department; or must be in one of the following programs (Computer Science (Master's); Computer Science (Doctoral)). Credit only granted for: CMSC412 or ENEE447. A hands-on introduction to operating systems, including topics in: multiprogramming, communication and synchronization, memory management, IO subsystems, and resource scheduling polices. The laboratory component consists of constructing a small kernel, including functions for device IO, multi-tasking, and memory management.

CMSC 414 Computer and Network Security (3) Prerequisite: Minimum grade of C- in CMSC330 and CMSC351; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Restriction: Permission of CMNS-Computer Science department. Credit only granted for: CMSC414, ENEE459C, or ENEE457. An introduction to the topic of security in the context of computer systems and networks. Identify, analyze, and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area Internet environment.

CMSC 417 Computer Networks (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Computer networks and architectures. The OSI model including discussion and examples of various network layers. A general introduction to existing network protocols. Communication protocol specification, analysis, and testing.

CMSC 420 Data Structures (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Description, properties, and storage allocation of data structures including lists and trees. Algorithms for manipulating structures. Applications from areas such as data processing, information retrieval, symbol manipulation, and operating systems.

CMSC 421 Introduction to Artificial Intelligence (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Areas and issues in artificial intelligence, including search, inference, knowledge representation, learning, vision, natural languages, expert systems, robotics. Implementation and application of programming languages (e.g. LISP, PROLOG, SMALLTALK), programming techniques (e.g. pattern matching, discrimination networks) and control structures (e.g. agendas, data dependencies).

CMSC 422 Introduction to Machine Learning (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Recommended: STAT400.

Machine Learning studies representations and algorithms that allow machines to improve their performance on a task from experience. This is a broad overview of existing methods for machine learning and an introduction to adaptive systems in general. Emphasis is given to practical aspects of machine learning and data mining.

CMSC 423 Bioinformatic Algorithms, Databases, and Tools (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. An introduction to the main algorithms, databases, and tools used in bioinformatics. Topics may include assembly and analysis of genome sequences, reconstructing evolutionary histories, predicting protein structure, and clustering of biological data. Use of scripting languages to perform analysis tasks on biological data. No prior knowledge of biology is assumed.

CMSC 424 Database Design (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Students are introduced to database systems and motivates the database approach as a mechanism for modeling the real world. An in-depth coverage of the relational model, logical database design, query languages, and other database concepts including query optimization, concurrency control; transaction management, and log based crash recovery. Distributed and Web database architectures are also discussed.

CMSC 425 Game Programming (3) Prerequisite: Minimum grade of C- in CMSC420. An introduction to the principles and practice of computer game programming and design. This includes an introduction to game hardware and systems, the principles of game design, object and terrain modeling, game physics, artificial intelligence for games, networking for games, rendering and animation, and aural rendering. Course topics are reinforced through the design and implementation of a working computer game.

CMSC 426 Computer Vision (3) Prerequisite: Minimum grade of C- in CMSC330 and CMSC351; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Restriction: Permission of CMNS-Computer Science department. An introduction to basic concepts and techniques in computervision. This includes low-level operations such as image filtering and edge detection, 3D reconstruction of scenes using stereo and structure from motion, and object detection, recognition and classification.

CMSC 427 Computer Graphics (3) Prerequisite: MATH240; and minimum grade of C- in CMSC420; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. An introduction to the principles of computer graphics. Includes an introduction to graphics displays and systems. Introduction to the mathematics of affine and projective transformations, perspective, curve and surface modeling, algorithms for hidden-surface removal, color models, methods for modeling illumination, shading, and reflection.

CMSC 430 Introduction to Compilers (3) Prerequisite: Minimum grade of C- in CMSC330 and CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Topics include lexical analysis, parsing, intermediate representations, program analysis, optimization, and code generation.

CMSC 433 Programming Language Technologies and Paradigms (3) Prerequisite: Minimum grade of C- in CMSC330; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Restriction: Permission of CMNS-Computer Science department. Programming language technologies

(e.g., object-oriented programming), their implementations and use in software design and implementation.

CMSC 434 Introduction to Human-Computer Interaction (3) Prerequisite: Minimum grade of C- in CMSC330 and CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Assess usability by quantitative and qualitative methods. Conduct task analyses, usability tests, expert reviews, and continuing assessments of working products by interviews, surveys, and logging. Apply design processes and guidelines to develop professional quality user interfaces. Build low-fidelity paper mockups, and a high-fidelity prototype using contemporary tools such as graphic editors and a graphical programming environment (eg: Visual Basic, Java).

CMSC 435 Software Engineering (3) Prerequisite: 1 course with a minimum grade of C- from (CMSC412, CMSC417, CMSC420, CMSC430, CMSC433); and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. State-of-the-art techniques in software design and development. Laboratory experience in applying the techniques covered. Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement, design and code inspection techniques, correctness, and chief-programmer teams. The development of a large software project.

CMSC 436 Programming Handheld Systems (3) Prerequisite: Minimum grade of C- in CMSC330 and CMSC351; or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Restriction: Permission of CMNS-Computer Science department. Fundamental principles and concepts that underlie the programming of handheld systems, such as mobile phones, personal digital assistants, and tablet computers. Particular emphasis will be placed on concepts such as limited display size, power, memory and CPU speed; and new input modalities, where handheld systems differ substantially from non-handheld systems, and thus require special programming tools and approaches. Students will apply these concepts and principles in the context of an existing handset programming platform.

CMSC 451 Design and Analysis of Computer Algorithms (3) Prerequisite: Minimum grade of C- in CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Fundamental techniques for designing efficient computer algorithms, proving their correctness, and analyzing their complexity. General topics include sorting, selection, graph algorithms, and basic algorithm design paradigms (such as divide-and-conquer, dynamic programming and greedy algorithms), lower bounds and NP-completeness.

CMSC 452 Elementary Theory of Computation (3) Prerequisite: Minimum grade of C- in CMSC351; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Alternative theoretical models of computation, types of automata, and their relations to formal grammars and languages.

CMSC 456 Cryptology (3) Prerequisite: (any two 400-level MATH courses; or (CMSC351 and CMSC330)); and permission of CMNS-Computer Science department. Or must be a CMSC graduate student. Also offered as: MATH456. Credit only granted for: CMSC456 or MATH456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability, and computer science topics include complexity theory.

CMSC 460 Computational Methods (3) Prerequisite: MATH240 and MATH241; and (CMSC106 or CMSC131); and permission of CMNS-Computer Science department. Or must be in the (Computer

Science (Doctoral), Computer Science (Master's)) program. Also offered as: AMSC460. Credit only granted for: AMSC460, AMSC466, CMSC460, or CMSC466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

CMSC 466 Introduction to Numerical Analysis I (3) Prerequisite: MATH240 and MATH241; and (CMSC106 or CMSC131); and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Also offered as: AMSC466. Credit only granted for: AMSC460, AMSC466, CMSC460, or CMSC466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

CMSC 474 Introduction to Computational Game Theory (3) Prerequisite: Minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Credit only granted for: CMSC474, ECON414, GVPT390 or GVPT399A. Game theory deals with interactions among agents (either human or computerized) whose objectives and preferences may differ from the objectives and preferences of the other agents. It will also provide a comprehensive introduction to game theory, concentrating on its computational aspects.

CMSC 475 Combinatorics and Graph Theory (3) Prerequisite: MATH240 and MATH241; and permission of CMNS-Computer Science department. Or must be in the (Computer Science (Doctoral), Computer Science (Master's)) program. Also offered as: MATH475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

CMSC 498 Selected Topics in Computer Science (1-3) Restriction: Permission of CMNS-Computer Science department. An individualized course designed to allow a student or students to pursue a selected topic not taught as a part of the regular course offerings under the supervision of a Computer Science faculty member. In addition, courses dealing with topics of special interest and/or new emerging areas of computer science will be offered with this number. Selected topics courses will be structured very much like a regular course with homework, project and exams. Credit according to work completed

CMSC 499 Independent Undergraduate Research (1-3) Restriction: Must be in one of the following programs (Computer Science; Engineering: Computer) ; and permission of CMNS-Computer Science department. Students are provided with an opportunity to participate in a computer science research project under the guidance of a faculty advisor. Format varies. Students and supervising faculty member will agree to a research plan which must be approved by the department. As part of each research plan, students should produce a final paper delineating their contribution to the field.

COMM -- Communication

COMM 100 Foundations of Oral Communication (3) Restriction: Must not have completed COMM107. Credit only granted for: COMM100 or COMM107. Prerequisite for advanced communication courses. A study of oral communication principles, including verbal and nonverbal language, listening, group dynamics, and public speaking. Emphasis in this course is upon the application of these principles to contemporary problems and upon the preparation of different types of oral discourse.

COMM 107 Oral Communication: Principles and Practices (3) Credit only granted for: COMM107, COMM200, ENES143, INAG110, JOUR130 or THET285. A study of and practice in oral communication, including principles of interviewing, group discussion, listening, informative briefings, and persuasive speeches.

COMM 125 Introduction to Interpersonal Communication (3) Concepts of interpersonal communication including perception, language and meaning, nonverbal communication, listening and feedback.

COMM 170 Foundations of Listening (3) Role, process, and levels of listening behavior and the development of listening skills.

COMM 200 Critical Thinking and Speaking (3) Credit only granted for: COMM107, COMM200, ENES143, INAG110, JOUR130, OR THET285. Theory and practice of persuasive discourse analysis and composition. Research techniques, logical and rhetorical conceptions of argument, and technical principles for persuading in public venues.

COMM 201 Introduction to Public Relations (3) Basic concepts and principles of public relations. Roles in organizations and society; history; skills and practices of public relations; theories and models of effective and ethical public relations.

COMM 207 Oral Communication for Engineers (1) Prerequisite: ENES100. An exploration of oral communication skills which prepares engineers to engage in interpersonal communication in professional and international settings, communicate effectively in group environments, and deliver listenable presentations.

COMM 220 Small Group Discussion (3) Principles, methods and types of interaction occurring in small groups with an emphasis on group discussion and decision-making.

COMM 230 Argumentation and Debate (3) A study of the fundamental principles of reasoning, analysis, and evidence preparation of debate briefs and presentation of standard academic debate.

COMM 250 Introduction to Communication Inquiry (3) An introduction to the field of communication. Definitions, models, and contexts of communication; rhetorical theory and rhetorical criticism of discourse.

COMM 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

COMM 288 Communication Internship (1-6) Prerequisite: Permission of ARHU-Communication department. Repeatable to 6 credits if content differs. An individual experience arranged by the student with the instructor. Does not satisfy communication major requirements. 45 hours of supervised internship per credit hour with communication professional. Not a substitute for COMM386.

COMM 298 Selected Topics in Communication (3) Repeatable to 6 credits if content differs. Special topical study of contemporary issues in communication.

COMM 324 Communication and Gender (3) The creation of images of male and female, and masculine and feminine, through communication, the differences in male and female communication behaviors and styles, and the implications of those images and styles for male-female transactions.

COMM 330 Argumentation and Public Policy (3) Contemporary theories of argumentation with special emphasis on methods of formulating and critiquing public policy argument.

COMM 331 News Writing and Reporting for Public Relations (3) Prerequisite: COMM201; and must have completed or be concurrently enrolled in JOUR181. Restriction: Must be in Communication program; and (sophomore standing; or junior standing). Or permission of ARHU-Communication department. Credit only granted for: JOUR201, COMM231, or COMM331. Formerly: COMM231. Writing and researching news and information media for public relations; laboratory in news-gathering tools and writing techniques for public relations.

COMM 332 News Editing for Public Relations (3) Prerequisite: Minimum grade of C- in COMM331; or students who have taken courses with comparable content may contact the department. And permission of ARHU-Communication department. Restriction: Must be in Communication program. Credit only granted for: JOUR202, COMM232, or COMM332. Formerly: COMM232. Copy editing, graphic principles and processes, news and information technologies for public relations.

COMM 340 Communicating the Narrative (3) The role of narratives in communicating messages and development of strategies to effectively communicate the narrative form through storytelling, oral reading, and anecdotes.

COMM 350 Public Relations Theory (3) Prerequisite: COMM231 or COMM250. Restriction: Must be in Communication program. Credit only granted for: COMM350 or COMM430. The historical development and contemporary status of public relations in business, government, associations and other organizations. Application of communication theory and social science methods to the research, planning, communication and evaluation aspects of the public relations process.

COMM 351 Public Relations Techniques (3) Prerequisite: COMM332. Restriction: Must be in Communication program. Credit only granted for: COMM351 or JOUR331. Formerly: JOUR331. The techniques of public relations, including news releases, publications and printed materials, audio-visual techniques, speeches and special events. Application of these techniques in laboratory and field projects.

COMM 352 Specialized Writing in Public Relations (3) Prerequisite: Minimum grade of C- in COMM351. Restriction: Must be in Communication program. Credit only granted for: COMM352 or JOUR332. Formerly: JOUR332. Public Relations writing for science, technology, health, medicine, corporate finance, educational policy, law and government in broadcast and technical media, as well as newspapers, magazines, proposals, speeches and correspondence.

COMM 353 New Media Writing for Public Relations (3) Prerequisite: Minimum grade of C- in COMM351. Restriction: Must be in Communication program. Credit only granted for: COMM352 or COMM353. Formerly: COMM352. Students learn the uses and influence of new media on public relations practice and expand their ability to write using new and traditional media platforms and tools

COMM 354 Public Relations Programs (3) Prerequisite: COMM350. Credit only granted for: COMM354 or JOUR334. Formerly: JOUR334. Analysis of eight major programs typically carried out by public relations professionals: employee relations, media relations, financial relations, member relations, governmental relations, community relations, fundraising and dealing with activist public.

COMM 360 The Rhetoric of Black America (3) An historical-critical survey of the rhetoric of Black Americans from the colonial period to the present.

COMM 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

COMM 370 Mediated Communication (3) Prerequisite: COMM250. Restriction: Junior standing or higher. Analysis and critique of structure, performance, content, effects, and future of mediated communication.

COMM 371 Communication and Digital Media (3) Restriction: Must be in Communication program. Credit only granted for: COMM371 or COMM398V. Formerly: COMM398V. A basic introduction to communication in the digital age. Through class lectures, assignments and projects, students will learn to effectively use new media for the purpose of strategic message creation and management used in the field of communication. Students will apply the basics of visual layout skills and the principles of visual design to create messages using words and images.

COMM 372 Communication, Meaning, and Digital Media (3) Restriction: Must be in Communication program. An exploration of visual communication and meaning creation. A theoretical and practical application of communication concepts and techniques in the production of visual content.

COMM 373 Communication and Digital Visual Narrative (3) Restriction: Must be in Communication program. Examination of the traditional style of visual communication, its practices and theoretical underpinnings juxtaposed against contemporary digital media aesthetics and techniques. Utilizing a variety of communication skills and new media tools, students will plan, write, shoot, edit, and upload digital visual narratives.

COMM 374 Communicating Visually: Message Production and Digital Media (3) Restriction: Restricted to Communication Majors at the Universities at Shady Grove. Focus on the interplay between technology, images and sound in the creation of digital content. This is a communication process by which a digital visual message evolves from conception to completion, incorporating the creative, financial and marketing tools. Students will conceive, plan, recruit and supervise digital video projects, developing a familiarity with production management technique and execution.

COMM 375 Documentary Theory and Practice (3) Restriction: Must be in Communication program. A historical and theoretical introduction to documentary films and videos. Students will explore the power of documentaries to address socially significant issues.

COMM 376 Communication through Advocacy Short Film (3) Restriction: Must be in Communication program. Explores the theory and practice of contemporary communication and advocacy short form video.

COMM 382 Essentials of Intercultural Communication (3) Credit only granted for: COMM382 or COMM482. Introduction of major theories and concepts of intercultural communication; examination of processes that make up cultural differences; and use of intercultural communication competence skills.

COMM 385 Influence (3) Credit only granted for: COMM385 or COMM498I (Spring 2014). Formerly: COMM498I (Spring 2014). Explores contemporary theories of influence and their implications for communication practice. Topics include power and influence, logical theory, rhetorical theory, persuasion theory, framing theory, social influence theory, and propagation of influence in mediated social networks.

COMM 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-Communication department. Restriction: Junior standing or higher; and must be in Communication program. Supervised internship experience with communication professionals. Relation of academic training to professional experience.

COMM 388 Communication Practicum (1-3) Prerequisite: Permission of ARHU-Communication department. Repeatable to 3 credits if content differs. Supervised professional-level practice in communication.

COMM 398 Selected Topics in Communication (3) Repeatable to 6 credits if content differs. Topical study of contemporary issues in communication.

COMM 399 Honors Thesis (3) Prerequisite: Permission of ARHU-Communication department. Restriction: Must be in Communication program. Repeatable to 6 credits if content differs.

COMM 400 Research Methods in Communication (3) Prerequisite: COMM250; and must have an introductory course in statistics. Restriction: Must be in Communication program. Philosophy of scientific method; role of theory; research ethics; empirical research methods (measurement, sampling, design, analysis).

COMM 401 Interpreting Strategic Discourse (3) Prerequisite: COMM250. Restriction: Must be in Communication program. Principles and approaches for practical analysis of discourse designed to shape audience opinion.

COMM 402 Communication Theory and Process (3) Prerequisite: COMM250. Restriction: Must be in Communication program. Philosophical and conceptual analysis of communication theories.

COMM 420 Theories of Group Discussion (3) Current theory, research and techniques regarding small group process, group dynamics, leadership and decision-making.

COMM 421 Communicating Leadership (3) Examines the nature of leadership, theories of leadership from a communication perspective, relationships between leadership, authority, power, and ethics. Explores leadership responsibilities, commitments, and actions.

COMM 422 Communication Management (3) Communication policies, plans, channels, and practices in the management of the communication function in organizations.

COMM 423 Communication Processes in Conferences (3) Group participation in conferences, methods of problem solving, semantic aspects of language, and the function of conferences in business, industry and government settings.

COMM 424 Communication in Complex Organizations (3) Structure and function of communication within organizations: organizational climate and culture, information flow, networks and role relationships.

COMM 425 Negotiation and Conflict Management (3) Role of communication in shaping negotiation and conflict processes and outcomes.

COMM 426 Conflict Management (3) Recommended: COMM425; and COMM250; and COMM402. Role of communication in managing conflict processes.

COMM 427 Crisis Communication (3) Credit only granted for: COMM398C or COMM427. Formerly: COMM398C. Explores theories and research related to communication before, during, and after a crisis. Students examine the fundamentals of organizational communication, crisis management, and strategic and crisis communication planning before examining case studies of a number of real-life crises: organizational crises, natural disasters, accidents, terrorism incidents, health crises, and major crises of credibility.

COMM 435 Theories of Interpersonal Communication (3) Prerequisite: COMM400; or permission of ARHU-Communication department. Major theoretical approaches and research trends in the study of interpersonal communication.

COMM 436 Interpersonal Arguing (3) Prerequisite: COMM400 and COMM250. Restriction: Must be in Communication program. Credit only granted for: COMM436 or COMM498I. Formerly: COMM498I. An examination of face to face arguing.

COMM 450 Ancient and Medieval Rhetorical Theory (3) Prerequisite: COMM250. Restriction: Must be in Communication program. Credit only granted for: COMM450 or COMM650. A survey of rhetorical theory in the ancient and medieval periods. Emphasis is placed on the theoretical problems that gave rise to its development within both periods. Authors include Isocrates, Plato, Aristotle, Cicero, Quintilian, Hermogenes, Martianus Capella, Aurelius Augustine, Alberic of Monte Cassino, Geoffrey of Vinsauf and Robert of Basevorn.

COMM 451 Renaissance & Modern Rhetoric Theory (3) A survey of rhetorical theory in the renaissance and modern periods. Emphasis is placed on the theoretical trends that dominate rhetorical thinking during both periods--especially in Great Britain. Authors include Wilson, Sherry, Rainolde, Day, Hyperius, Cox, Ramus, Talon, Bacon, Pascal, Fenelon, Sheridan, Campbell, Blair, and Whately.

COMM 453 The Power of Discourse in American Life (3) The potential of language forms and strategic discourse to create, perpetuate, and alter patterns of political and cultural behavior. The influence of contemporary political and cultural discourse on public understanding, public policy, and day-to-day life.

COMM 454 Rhetoric of the 1960s (3) Prerequisite: COMM401; or permission of ARHU-Communication department. Restriction: Must not have completed COMM453 (Spring2003). Study of key rhetoric of the 1960s. Treats rhetoric of relevant Presidents and several protest movements including civil rights, anti-war, and women's liberation. Contrasts traditional modes of argument with alternative rhetorical forms.

COMM 455 Speechwriting (3) The study of message strategies in order to research and develop effective speech texts appropriate to speakers and their audiences in various public contexts.

COMM 458 Seminar in Political Communication (3) Prerequisite: COMM250. Repeatable to 6 credits if content differs. The examination of special topics for and theories of political communication.

COMM 460 Public Life in American Communities, 1634-1900 (3) Ways that Americans have used their voice to create public life. Focus is on the diverse social communities that have characterized American life and the place and characteristics of oral discourse in each.

COMM 461 Voices of Public Leadership in the Twentieth Century (3) Study of the use of speaking in the power struggles of the twentieth century. Focus is on important speakers of the century, their social and policy influence, and the struggle to expand the diversity of voices with power in the public sphere.

COMM 468 Seminar in Mediated Communication (3) Prerequisite: COMM402, COMM450, COMM350, or JOUR350. Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. The examination of special topics related to the study of mediated communication.

COMM 469 The Discourse of Social Movements (3) Recommended: COMM401. Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. Study of key social movements that have influenced American social and political life. In alternate years the Civil Rights Movement and the Rhetoric of Women's Suffrage and Abolitionism. Consideration of how groups excluded from or marginalized in American political life affect social change.

COMM 470 Listening (3) The principles of listening behavior.

COMM 471 Public Communication Campaigns (3) Prerequisite: COMM200; or permission of ARHU-Communication department. Diffusion theory and its implications for public communication campaigns.

COMM 472 Nonverbal Communication (3) Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

COMM 475 Persuasion (3) Bases of persuasion, with emphasis on recent experimental developments in persuasion.

COMM 476 Language, Communication, and Action (3) The nature of communication as symbolic action. Topics include language, meaning, intention, understanding, and consequences of communication.

COMM 477 Discourse Analysis (3) Concepts of textual and discourse analysis applied to speech situations.

COMM 478 Communication Colloquium (1) Repeatable to 4 credits if content differs. Current trends and issues in the field of communication, stressing recent research methods. Recommended for senior and graduate student majors and minors in communication.

COMM 482 Intercultural Communication (3) The major variables of communication in an intercultural context: cultural, racial and national differences; stereotypes; values; cultural assumptions; and verbal and nonverbal channels.

COMM 483 Senior Seminar in Public Relations (3) Prerequisite: COMM351 and COMM400. Credit only granted for: COMM483 or JOUR483. Formerly: JOUR483. Integration of theory, techniques and research methods into the planning and execution of public relations campaigns for specific organizations. Analysis of research on the case studies of public relations.

COMM 488 Communication Portfolio Project (1) Restriction: Senior standing; and must be in Communication program. Repeatable to 3 credits if content differs. Preparation of the professional communication portfolio.

COMM 489 Topical Research (1-3) Prerequisite: Permission of ARHU-Communication department. Repeatable to 6 credits if content differs. Individualized research projects conducted with a faculty sponsor.

COMM 498 Seminar (3) Restriction: Permission of instructor; and senior standing. Present-day communication research.

CPBE -- College Park Scholars-Business, Society, and Economy

CPBE 100 College Park Scholars: Business, Society & the Economy First-Year Colloquium (1) Restriction: Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program. Introductory colloquium: Examination of issues related to business, society and the economy.

CPBE 225 Enterprise Communications (3) Prerequisite: CPBE100. Restriction: Must be enrolled in College Park Scholars' Business, Society and the Economy (CPBE) program. Formerly: CPSP220. Examines basic interpersonal communication processes within written and oral channels, with practical applications for the business environment.

CPBE 230 College Park Scholars: Business, Society & the Economy Internship Practicum (1-3) Prerequisite: CPBE100. Restriction: Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program. Supervised internship project in an area related to business, society and the economy.

CPBE 240 College Park Scholars: Business, Society & the Economy Service-Learning Practicum (1-3) Prerequisite: CPBE100. Restriction: Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program. Supervised Service-Learning project in an area related to business, society and the economy.

CPBE 250 College Park Scholars: Business, Society & the Economy Research Practicum (1-3) Prerequisite: CPBE100. Restriction: Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program. Supervised research project in an area related to business, society and the economy.

CPBE 270 College Park Scholars: Business, Society & the Economy Education Abroad Practicum (1-3) Prerequisite: CPBE100. Restriction: Students must be matriculated into the College Park Scholars Business, Society & the Economy (CPBE) program. Education-abroad experience with content in areas related to business, society and/or the economy.

CPET -- College Park Scholars-Environment, Technology & Economy

CPET 100 College Park Scholars: Environment, Technology & Economy First-Year Colloquium I (1) Restriction: Students must be enrolled in the College Park Scholars Environment, Technology & Economy (CPET) program. Introductory colloquium: Examination of issues related to the convergence of the environment, technology and the economy.

CPET 101 College Park Scholars: Environment, Technology & Economy First-Year Colloquium II (1) Prerequisite: CPET100. Restriction: Students must be enrolled in the College Park Scholars Environment, Technology & Economy (CPET) program. Introductory colloquium II: Continued

examination of issues related to the convergence of the environment, technology and the economy. Group projects in sustainable development.

CPET 200 College Park Scholars: Environment, Technology & Economy Second-Year Colloquium (1) Prerequisite: CPET101. Restriction: Students must be enrolled in the College Park Scholars Environment, Technology & Economy (CPET) program. Advanced colloquium: Continued examination of issues related to sustainable development.

CPET 230 College Park Scholars: Environment, Technology & Economy Internship Practicum (1-3) Prerequisite: CPET200. Restriction: Students must be matriculated into the College Park Scholars Environment, Technology & the Economy (CPET) program. Supervised internship project in an area related to the environment, technology and the economy.

CPET 240 College Park Scholars: Environment, Technology & Economy Service-Learning Practicum (1-3) Restriction: Students must be matriculated into the College Park Scholars Environment, Technology & the Economy (CPET), Science, Technology & Society (CPSS), Arts (CPSA) and Business, Society, & Economy (CPBE) programs. Supervised Service-Learning project in an area related to the environment, technology and the economy.

CPET 250 College Park Scholars: Environment, Technology & Economy Research Practicum (1-3) Prerequisite: CPET200. Restriction: Students must be matriculated into the College Park Scholars Environment, Technology & the Economy (CPET) program. Supervised research project in an area related to the environment, technology and the economy.

CPGH -- College Park Scholars-Global Public Health

CPGH 100 College Park Scholars: Global Public Health First-Year Colloquium I (1) Restriction: Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program. Introductory colloquium: Examination of factors that determine the health status of populations around the world.

CPGH 101 College Park Scholars: Global Public Health First-Year Colloquium II (1) Prerequisite: CPGH100. Restriction: Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program. Using case studies, students will examine necessary components to design successful public health interventions.

CPGH 200 College Park Scholars: Global Public Health Second-Year Colloquium (1) Prerequisite: CPGH101. Restriction: Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program. Building on knowledge and skills gained from the first-year colloquia, students will develop public health interventions that address a public health issue of a particular community.

CPGH 230 College Park Scholars: Global Public Health - Internship Practicum (1-3) Prerequisite: CPGH200. Restriction: Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program. Supervised internship project in an interest area related to global public health.

CPGH 240 College Park Scholars: Global Public Health Service-Learning Practicum (1-3) Prerequisite: CPGH200. Restriction: Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program. Supervised Service-Learning project in an interest area related to global public health.

CPGH 250 College Park Scholars: Global Public Health Research Practicum (1-3) Prerequisite: CPGH200. Restriction: Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program. Supervised research project in an interest area related to global public health.

CPGH 270 College Park Scholars: Global Public Health Education Abroad Practicum (1-3) Prerequisite: CPGH200. Restriction: Students must be enrolled in the College Park Scholars Global Public Health (CPGH) program. Education abroad experience in an interest area related to global public health.

CPJT -- College Park Scholars-Justice and Legal Thought

CPJT 100 College Park Scholars: Justice & Legal Thought: First-Year Colloquium (1) Restriction: Students must be enrolled in the College Park Scholars Justice & Legal Thought (CPJT) program. Students will gain an experiential understanding of law and justice by investigating concepts and frameworks of justice and apply them to real-world experience.

CPJT 200 Justice and legal Thought Second Year Colloquium (1) Restriction: Students must be enrolled in the College Park Scholars Justice and Legal Thought (CPJT) program. Additional information: When combined with the first year CPJT colloquia, students will learn how to research issues discussed and debated throughout year one. Advanced colloquium for second year students related to research skill development

CPJT 230 Capstone for Justice and Legal Thought: Internship (2) The capstone of the four-semester College Park Scholars Justice and Legal thought citation program is an exploration of justice and law within a rigorous academic and experiential framework. Students must develop and perform practicum internships in professional law related settings. In all settings, students must interact directly with legal professionals in law related fields and through law-related institutions under the supervision of legal professionals and program staff. In conjunction with the experiential component, students will synthesize their experience within the learning outcomes of the Justice and Legal Thought Program through an innovative final project culminating in a poster presentation.

CPJT 240 Capstone for Justice and Legal Thought: Service-Learning (2) The capstone of the four-semester College Park Scholars Justice and Legal Thought citation program is an exploration of justice and law within a rigorous academic and experiential framework. Students must develop and perform practicum volunteer experiences in professional law related settings. In all settings, students must interact directly with legal professionals in law related fields and through law-related institutions under the supervision of legal professionals and program staff. In conjunctions with the experiential component, students will synthesize their experience within the learning outcomes of the Justice and Legal Thought program through an innovative final project culminating in a poster presentation.

CPJT 250 Capstone for Justice and Legal Thought: Research (2) The capstone of the four-semester College Park Scholars Justice and Legal Thought citation program is an exploration of justice and law within a rigorous academic and experiential framework. Students must develop and perform applied research in a law related setting. Students must interact directly with legal professionals under the supervision of program staff. Students will synthesize their experience within the learning outcomes of the Justice and Legal Thought Program through an innovative final research project culminating in a poster presentation.

CPMS -- College Park Scholars-Media, Self and Society

CPMS 100 College Park Scholars: Media, Self & Society First-Year Colloquium I (1) Restriction: Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program. Introductory colloquium: Examination of issues related to the media.

CPMS 101 College Park Scholars: Media, Self & Society First-Year Colloquium II (1) Prerequisite: CPMS100. Restriction: Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program. Examination of the media's coverage of topical issues.

CPMS 225 Analyzing Media Practice through Theory (3) Prerequisite: CPMS100. Restriction: Must be in the Scholars Media, Self & Society Program. Formerly: CPSP222. Media analysis investigating patterns of ownership, the working of media organizations, patterns of coverage and the nature of audiences.

CPMS 230 College Park Scholars: Media, Self & Society - Internship Practicum (1-3) Prerequisite: CPMS101. Restriction: Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program. Supervised internship project in an area related to media, self and society.

CPMS 240 College Park Scholars: Media, Self & Society - Service-Learning Practicum (1-3) Prerequisite: CPMS101. Restriction: Students must be enrolled in the College Park Scholars Media, Self & Society (CPMS) program. Supervised Service-Learning project in an area related to media, self and society.

CPPL -- College Park Scholars-Public Leadership

CPPL 100 College Park Scholars: Public Leadership First-Year Colloquium I (1) Restriction: Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program. Introductory colloquium: Examination of issues related to public leadership.

CPPL 101 College Park Scholars: Public Leadership First-Year Colloquium II (1) Prerequisite: CPPL100. Restriction: Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program. Continued examination of issues related to public leadership. Development of team, community-based learning project proposals.

CPPL 200 College Park Scholars: Public Leadership - Applied Leadership Capstone I (1) Prerequisite: CPPL101. Restriction: Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program. Planning and initiation of team, community-based-learning projects.

CPPL 201 College Park Scholars: Public Leadership - Applied Leadership Capstone II (2) Prerequisite: CPPL200. Restriction: Students must be enrolled in the College Park Scholars Public Leadership (CPPL) program. Implementation and evaluation of team, community-based-learning projects.

CPSA -- College Park Scholars-Arts

CPSA 100 College Park Scholars: Arts First-Year Colloquium I (1) Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Introductory colloquium: Aesthetic, intellectual and personal examination of the arts.

CPSA 101 College Park Scholars: Arts First-Year Colloquium II (1-2) Prerequisite: CPSA100. Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Introductory colloquium II: Arts workshops and Arts Festival.

CPSA 149 College Park Scholars: Arts Service-Learning Outreach (2) Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Repeatable to 6 credits. Service-Learning outreach to Prince George's County schools and non-profit agencies.

CPSA 200 College Park Scholars: Arts Second-Year Colloquium I (1) Prerequisite: CPSA101. Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Additional information: When paired with successful completion of CPSA 240, 250 or 260, students will earn General Education Scholarship-in-Practice credit. Advanced colloquium I: Examination of the arts in society; and preparation for "Scholarship-in-Practice" project.

CPSA 201 College Park Scholars: Arts Second-Year Colloquium II (1-2) Prerequisite: CPSA200. Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Advanced colloquium II: Arts workshop and Arts Festival.

CPSA 240 College Park Scholars: Arts Service-Learning Practicum (2) Prerequisite: CPSA200. Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Additional information: When paired with successful completion of CPSA 200, students will earn General Education Scholarship-in-Practice credit. Supervised Service-Learning project in an area related to the arts.

CPSA 250 College Park Scholars: Arts Research Practicum (2) Prerequisite: CPSA200. Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Additional information: When paired with successful completion of CPSA 200, students will earn General Education Scholarship-in-Practice credit. Supervised research project in an area related to the arts.

CPSA 260 College Park Scholars: Arts Peer-Teaching Practicum (2) Prerequisite: CPSA200. Restriction: Students must be matriculated into the College Park Scholars Arts (CPSA) program. Additional information: When paired with successful completion of CPSA 200, students will earn General Education Scholarship-in-Practice credit. Supervised peer-teaching project in an area related to the arts.

CPSD -- College Park Scholars-Science, Discovery & the Universe

CPSD 100 College Park Scholars: Science, Discovery & the Universe First-Year Colloquium A (1) Restriction: Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program. Additional information: Both freshman colloquia (CPSD 100 and 101) are required for students to earn their College Park Scholars citations; however, they can be taken in any order during a student's first year. Introductory colloquium: Examination of issues related to science, discovery and the universe.

CPSD 101 College Park Scholars: Science, Discovery & the Universe First-Year Colloquium B (1) Restriction: Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program. Additional information: Both freshman colloquia (CPSD 100 and 101) are required for students to earn their College Park Scholars citations; however, they can be taken in any order during a

student's first year. Introductory colloquium: Examination of the intersection of astronomy and culture; and the roles of science, exploration and communication in the process of discovery.

CPSD 200 College Park Scholars: Science, Discovery & the Universe Second-Year Colloquium (1) Prerequisite: CPSD100 and CPSD101. Restriction: Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program. Advanced colloquium: Continued examination of issues related to science, discovery and the universe.

CPSD 230 College Park Scholars: Science, Discovery & the Universe - Internship Practicum (1-3) Prerequisite: CPSD200. Restriction: Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program. Supervised internship project in an interest area related to science, discovery and the universe.

CPSD 240 College Park Scholars: Science, Discovery & the Universe - Service-Learning Practicum (1-3) Prerequisite: CPSD200. Restriction: Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program. Supervised Service-Learning project in an interest area related to science, discovery and the universe.

CPSD 250 College Park Scholars: Science, Discovery & the Universe - Research Practicum (1-3) Prerequisite: CPSD200. Restriction: Students must be enrolled in the College Park Scholars Science, Discovery & the Universe (CPSD) program. Supervised research project in an interest area related to science, discovery and the universe.

CPSF -- College Park Scholars-Life Sciences

CPSF 100 College Park Scholars: Life Sciences First-Year Colloquium l (1) Restriction: Students must be enrolled in the College Park Scholars Life Sciences (CPSF) program. Introductory colloquium: Examination of issues related to the life sciences.

CPSF 101 College Park Scholars: Life Sciences First-Year Colloquium lI (1) Prerequisite: CPSF100. Restriction: Students must be enrolled in the College Park Scholars Life Sciences (CPSF) program. Further examination of issues related to the life sciences.

CPSG -- College Park Scholars-Science and Global Change

CPSG 100 College Park Scholars: Science & Global Change First-Year Colloquium I (1) Restriction: Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program. Introductory colloquium: Examination of issues related to science and global change.

CPSG 101 College Park Scholars: Science & Global Change First-Year Colloquium II (1) Prerequisite: CPSG100. Restriction: Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program. Introductory colloquium II: Continued examination of issues related to science and global change.

CPSG 200 College Park Scholars: Science & Global Change Second-Year Colloquium (1) Prerequisite: CPSG101. Restriction: Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program. Advanced colloquium: Continued examination of issues related to science and global change.

CPSG 230 College Park Scholars: Science & Global Change - Internship Practicum (1-3) Prerequisite: CPSG200. Restriction: Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program. Supervised internship in an interest area related to science and global change.

CPSG 240 College Park Scholars: Science & Global Change - Service-Learning Practicum (1-3) Prerequisite: CPSG200. Restriction: Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program. Supervised Service-Learning experience in an interest area related to science and global change.

CPSG 250 College Park Scholars: Science & Global Change - Research Practicum (1-3) Prerequisite: CPSG200. Restriction: Students must be enrolled in the College Park Scholars Science & Global Change (CPSG) program. Supervised research experience in an interest area related to science and global change.

CPSN -- College Park Scholars-International Studies

CPSN 100 College Park Scholars: International Studies First-Year Colloquium I (2) Restriction: Students must be enrolled in the College Park Scholars International Studies (CPSN) program. Introductory colloquium: Examination of issues related to international studies.

CPSN 101 College Park Scholars: International Studies First-Year Colloquium II (1) Prerequisite: CPSN100. Restriction: Students must be enrolled in the College Park Scholars International Studies (CPSN) program. Additional information: When paired with the successful completion of CPSN 100, students will earn Diversity/Cultural Competence General Education credits. Introductory colloquium II: Continued examination of issues related to international studies.

CPSN 230 College Park Scholars: International Studies - Internship Practicum (3) Prerequisite: CPSN101. Restriction: Students must be enrolled in the College Park Scholars International Studies (CPSN) program. Supervised internship project in an area related to international studies.

CPSN 240 College Park Scholars: International Studies - Service-Learning Practicum (3) Prerequisite: CPSN101. Restriction: Students must be enrolled in the College Park Scholars International Studies (CPSN) program. Supervised Service-Learning project in an area related to international studies.

CPSN 250 College Park Scholars: International Studies - Research Practicum (3) Prerequisite: CPSN101. Restriction: Students must be enrolled in the College Park Scholars International Studies (CPSN) program. Supervised research in an area related to international studies.

CPSP -- College Park Scholars Program

CPSP 118 College Park Scholars First-Year Colloquium I (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Introductory colloquium for specific College Park Scholars Program.

CPSP 119 College Park Scholars First-Year Colloquium II (1-3) Prerequisite: CPSP118. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Intermediate colloquium for specific College Park Scholars Programs.

CPSP 218 College Park Scholars Second-Year Colloquium I (1-3) Prerequisite: CPSP118. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Colloquium for specific College Park Scholars Program.

CPSP 219 College Park Scholars Second-Year Colloquium II (1-3) Prerequisite: CPSP218. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits if content differs. Intermediate colloquium for specific, second year, College Park Scholars Program.

CPSP 229 Practicum: Online Communication (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits if content differs. Supervised practicum in Website development.

CPSP 239 Practicum: Internship (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised internship in interest area related to the theme of the students' College Park Scholars program.

CPSP 249 Practicum: Service-Learning (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised Service-Learning project in area related to the theme of the students' College Park Scholars program.

CPSP 259 Practicum: Research (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised research project in interest area related to the students' College Park Scholars program.

CPSP 269 Practicum: Peer Teaching (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Supervised peer teaching in students' College Park Scholars program.

CPSP 279 Practicum: Study Abroad (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits if content differs. Supervised international experience that satisfies students' College Park Scholars practicum requirement.

CPSP 318 College Park Scholars Special Topics (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Special Topics learning opportunities in College Park Scholars.

CPSP 339 Advanced Practicum: Internship (1-3) Prerequisite: CPSP239. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Independent study designed for students who wish to extend in greater depth and detail projects begun in sophomore year. Subject varies. Overseen by faculty director or mentor.

CPSP 349 Advanced Practicum: Service Learning (1-3) Prerequisite: CPSP249. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Advanced supervised Service-Learning project.

CPSP 359 Advanced Practicum: Research (1-3) Prerequisite: CPSP259. Restriction: Must be in the College Park Scholars Program. Repeatable to 3 credits. Advanced supervised internship experience.

CPSP 369 Advanced Practicum: Peer Teaching (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 6 credits. Supervised advanced practicum in peer instruction.

CPSP 379 Advanced Practicum: Study Abroad (1-3) Restriction: Must be in the College Park Scholars Program; or permission of UGST-College Park Scholars. Repeatable to 3 credits if content differs. Advanced, supervised study-abroad experience.

CPSP 386 Experiential Learning (3-6)

CPSP 388 Advanced Special Topics in College Park Scholars (1-3) Restriction: Must be in the College Park Scholars Program. Repeatable to 6 credits if content differs. Interdisciplinary topics of special interest to College Park Scholars, such as legacies of the cold war, environmental ethics, women in leadership, and other timely issues. Projects build on previous work in College Park Scholars.

CPSS -- College Park Scholars-Science, Technology and Society

CPSS 100 College Park Scholars: Science, Technology & Society First-Year Colloquium I (2) Restriction: Students must be enrolled in the College Park Scholars Science, Technology & Society (CPSS) program. Introductory colloquium: Examination of issues related to science, technology and society.

CPSS 101 College Park Scholars: Science, Technology & Society First-Year Colloquium II (1) Prerequisite: CPSS100. Restriction: Students must be enrolled in the College Park Scholars Science, Technology & Society (CPSS) program. Continued examination of issues related to science, technology and society.

CPSS 225 College Park Scholars Capstone: Science, Technology, and Society (3) Prerequisite: CPSS100. Restriction: Must be in the College Park Scholars Science, Technology & Society (CPSS) program. Formerly: CPSP227. Exploration and understanding of ways science and technology shape and are shaped by society.

CPSS 230 College Park Scholars: Science, Technology & Society - Internship Practicum (1) Prerequisite: CPSS101. Restriction: Matriculation into the College Park Scholars Science, Technology & Society (CPSS) program. Supervised internship in an area related to science, technology and society.

CPSS 240 College Park Scholars: Science, Technology & Society - Service-Learning Practicum (3) Prerequisite: CPSS101; or permission of instructor. Restriction: Matriculation into the College Park Scholars Science, Technology & Society (CPSS) program; or permission of instructor. Supervised Service-Learning practicum in issues related to science, technology and society.

CPSS 260 College Park Scholars: Science, Technology & Society - Peer-Teaching Practicum (1) Prerequisite: CPSS101. Restriction: Matriculation into the College Park Scholars Science, Technology & Society (CPSS) program. Supervised peer teaching in science, technology and society.

DANC -- Dance

DANC 102 Rhythmic Training for Dance (2) Basic approaches to rhythmic principles related to dance.

DANC 109 Improvisation I (2) Restriction: Must be in Dance program; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. An introduction to the process of spontaneous movement discovery involving solo and group movement experiences.

DANC 118 Beginning Tap (2) Repeatable to 4 credits. Introduction to tap for the beginning student.

DANC 119 Introduction to American Social Dance (2) Repeatable to 4 credits. Social dance forms of North America.

DANC 128 Fundamentals of Ballet (2) Restriction: Must not be in Dance program. Repeatable to 4 credits. Introduction to ballet technique and terminology for the beginning student.

DANC 138 World Dance Forms (2) Repeatable to 4 credits. Movement course. Traditional dances and music of selected cultures.

DANC 148 Fundamentals of Modern Dance (2) Restriction: Must not be in Dance program. Repeatable to 4 credits. Introduction to modern dance with emphasis on the development of fundamental movement skills.

DANC 149 Fundamentals of Modern Dance II (2) Prerequisite: DANC148. Repeatable to 4 credits. Continuation of the development of axial and locomotor movement skills with emphasis on the development of functional alignment, musicality, range of movement, coordination, and movement memory.

DANC 158 Fundamentals of Jazz (2) Restriction: Must not be in Dance program. Repeatable to 4 credits. Introduction to the jazz style in dance for the beginning student.

DANC 179 Movement Integration (2) Restriction: Permission of ARHU-Dance department. Repeatable to 4 credits if content differs. Conditioning and re-patterning techniques for achieving integrated movement.

DANC 199 Practicum in Choreography, Production and Performance I (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Choreography, production, and performance of student works, both on and off campus.

DANC 200 Introduction to Dance (3) A study of dance as a form of communication and as an art form; a survey of the theories and styles of dance, and their relationships to other art forms.

DANC 207 The Creative Process (3) Prerequisite: DANC109. Restriction: Permission of ARHU-Dance department. Explorations in movement, music, words, objects, and environments through improvisation and choreographic problem solving.

DANC 208 Choreography I (3) Prerequisite: DANC109 and DANC102. Repeatable to 6 credits. Basic principles of dance composition: space, time, dynamics, and movement invention. The development of critical awareness.

DANC 209 Dance Composition (3) Prerequisite: DANC207. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Exploration of the structural elements of dance composition.

DANC 218 Foundations of Technique I (3) Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Development of heightened body awareness, breath support, dynamic alignment, and spatial awareness. Focus on rhythmic clarity and musicality.

DANC 219 Foundations of Technique II (3) Prerequisite: DANC218. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Continuation of the elements addressed in DANC218 with an added focus on momentum, the use of counter-tension, stability/mobility, suspension, and dynamic range.

DANC 228 Ballet I (2) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Barre and center work for alignment, strength, flexibility and coordination. Introduction to ballet terminology.

DANC 229 Ballet II (2) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Continuation of DANC228.

DANC 248 Modern Dance I (3) Restriction: Must be in Dance program; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Body alignment, rhythm, dynamics, space and dance phrases.

DANC 249 Modern Dance II (3) Prerequisite: DANC248; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC248.

DANC 258 Jazz I (2) Prerequisite: DANC158. Restriction: Must be in Dance program. Repeatable to 4 credits. Jazz warm-ups and combinations emphasizing rhythm and movement isolations.

DANC 259 Jazz II (2) Prerequisite: DANC258. Repeatable to 4 credits. Continuation of the principles of Jazz I. Emphasis on style and execution of movement.

DANC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

DANC 283 Foundations of Dance History (3) Restriction: Permission of ARHU-Dance department. Introduction to the historical throughlines of dance theory. Analysis of the structure, context, and content of dance works.

DANC 299 Practicum in Choreography, Production and Performance II (1-3) Prerequisite: DANC199; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC199.

DANC 304 Teaching Dance (3) Restriction: Permission of ARHU-Dance department. Organization and content of the studio dance class. Structuring developmentally appropriate dance experiences for students ages 3-18.

DANC 308 Choreography II (3) Prerequisite: DANC208. Repeatable to 6 credits. Exploration of the formal elements of choreography; theme, development, repetition, contrast, transition, continuity and structure.

DANC 309 Improvisation II (2) Prerequisite: DANC109; or must audition. Repeatable to 4 credits. Continuation of DANC109.

DANC 310 Dance Lighting (3) Prerequisite: DANC210. Two lectures and two laboratory periods per week. Theory and practice of stage lighting with specific reference to designing for dance.

DANC 318 Foundations of Technique III (3) Prerequisite: DANC219. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Continuation of the elements addressed in DANC219 with an added focus on off-verticality, spirals, complex level changes, more complex and extended phrasing, responsiveness to accompaniment, vocalization.

DANC 319 Foundations of Technique IV (3) Prerequisite: DANC318. Restriction: Permission of ARHU-Dance department. Repeatable to 6 credits if content differs. Continuation of the elements addressed in DANC318 with an added focus on movement subtlety and complexity, and stylistic demands.

DANC 328 Ballet III (2) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Execution of the vocabulary of ballet movement with technical accuracy.

DANC 329 Ballet IV (2) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Continuation of DANC328.

DANC 338 Global Movement Practices (2) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits if content differs. Movement course. Intermediate level of dances and music of selected world cultures.

DANC 348 Modern Dance III (3) Prerequisite: DANC249; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. The body as an instrument of expression; techniques for increasing kinesthetic sensitivity.

DANC 349 Modern Dance IV (3) Prerequisite: DANC348; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC348.

DANC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

DANC 371 Somatics (3) Prerequisite: DANC179. Restriction: Permission of ARHU-Dance department. Current ideas and trends in dance technique, with a focus on the incorporation of dance science and somatics into dance training.

DANC 379 Practicum in Dance (1-3) Repeatable to 12 credits. Performing experience for the student dancer who has developed a professional level of competence.

DANC 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

DANC 398 Directed Studies in Dance (1-6) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits.

DANC 399 Practicum in Choreography, Production and Performance III (1-3) Prerequisite: DANC299; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC299.

DANC 405 Dance Education and Policy (3) Restriction: Permission of ARHU-Dance department. Curricula in dance in K-12 settings, classroom management, assessment/grading, and best practices in dance education in public schools. Current research and policy issues are included. This course counts towards teacher certification in the State of Maryland.

DANC 409 Contact Improvisation (2) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 4 credits. Credit only granted for: DANC489C or DANC409. Discovery and cultivation of the principles and skills of Contact Improvisation dance technique.

DANC 410 Technical Theater Production for Dance (3) Prerequisite: DANC210; or students who have taken courses with comparable content may contact the department; or permission of ARHU-School of Theatre, Dance & Performance Studies department. A study of the theoretical principles of production and the practical application of those principles to the presentation of dance works.

DANC 420 Partnering (2) Restriction: Permission of ARHU-Dance department. Elements of contemporary partnering including weight sharing, counter balancing, momentum/leverage, lifting and moving responsively.

DANC 429 Advanced Ballet Technique II (1) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 3 credits. Intensive work in ballet technique for the professionally-oriented dancer.

DANC 448 Modern Dance V (3) Prerequisite: DANC349; and must audition. Repeatable to 6 credits. Complex phrases of modern dance movement with emphasis on articulation and expression.

DANC 449 Modern Dance VI (3) Prerequisite: DANC448; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Continuation of DANC448.

DANC 466 Laban Movement Analysis (3) Introduction to Rudolf Laban's system of qualitative movement analysis in relation to understanding personal movement style. Application to dance performance, teaching, composition and research.

DANC 468 Modern Repertory (3) Prerequisite: DANC349; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Form, content, music, design and performance of modern dance works.

DANC 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

DANC 479 Advanced Practicum in Dance (1-3) Repeatable to 6 credits. Advanced level performing experience for the student dancer who has developed an advanced professional level of competence.

DANC 483 History of Dance II (3) Prerequisite: DANC200. The development of dance from the Renaissance period to the present time and the relationship of dance forms to patterns of culture.

DANC 485 Seminar in Dance (3) Prerequisite: DANC483. Restriction: Must be in Dance program; and senior standing. Individual research leading to a presentation with written documentation of the process, serving as a culmination of undergraduate study for dance majors.

DANC 488 Project-Based Learning (4) Restriction: Permission of ARHU-Dance department. A specific project, is addressed, in dance from the perspectives of the investigator, the creator/choreographer, and the performer. Projects are cross-disciplinary and/or cross-cultural, and may involve both on- and off-campus experiences.

DANC 489 Special Topics in Dance (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Theoretical, choreographic, pedagogic, or performance study.

DANC 499 Practicum in Choreography, Production and Performance IV (1-6) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Advanced workshop in dance presentation, including performing, production and planned field experiences.

EALL -- East Asian Languages and Literatures

EALL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

EALL 300 The Languages of East Asia (3) A survey of Chinese, Japanese, and Korean, and the languages of other East Asian nationalities. Provides a basic understanding of the structures of these languages. Topics covered include the characterizing features; the relationships of the languages to each other; the geographical, social, and historical settings. No knowledge of Asian languages is required. Taught in English.

EALL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ECON -- Economics

ECON 111 Thinking Like an Economist (3) Restriction: Sophomore standing or lower; or permission of BSOS-Economics department. An introduction to the modes of thought of economics. Use of simple standard tools of economics to analyze important problems that arise frequently in public policy, the news media, and in daily life. An emphasis on how economists predict what choices societies make and how economists analyze whether those are good choices. Practical application of a variety of economic tools leading to a focus on the essential unity underlying these analytical tools, viewing economics as a discipline that applies a core methodology in different ways in different situations.

ECON 155 Economics & the College Affordability Crisis (3) Additional information: No background in economics is required, although this course could be a nice complement for ECON200 and ECON201. Why have tuition and fees increased substantially over the past 30 years at almost all institutions of higher education in the US? How can quality and productivity be measured in schools? Why do most students pay considerably less than the actual cost of service provision? What is society's interest in devoting considerable resources to education beyond the high school level? How do existing and proposed governmental policies impact both the number of students pursuing a college education and the cost of this education? ECON155 uses tools from economics to examine and explore answers to these and other related questions.

ECON 175 Inequality: Determinants and Policy Remedies (3) Through most of the 20th century gaps in income between rich and poor declined in the US, but after 1970 we experienced a very rapid increase in inequality. This course challenges students to investigate why people make different amounts of money, why income inequality has risen so dramatically in recent years, what public policy tools exist to counter inequality increases, and what different institutional arrangements different countries use to lower inequality. This course will introduce students to theoretical tools used by economists to understand the sources of inequality and will also examine empirical evidence to better understand changes in the wage distribution and, more generally, in income distribution.

ECON 200 Principles of Microeconomics (3) Prerequisite: MATH107 or MATH110; or must have math eligibility of MATH113 or higher. Credit only granted for: ECON200, AREC240, or AREC250. Additional information: It is recommended that students complete ECON200 before taking ECON201. Introduces economic models used to analyze economic behavior by individuals and firms and consequent market outcomes. Applies conceptual analysis to several policy issues and surveys a variety of specific topics within the broad scope of microeconomics.

ECON 201 Principles of Macroeconomics (3) Prerequisite: MATH107 or MATH110; or must have math eligibility of MATH113 or higher. Recommended: ECON200. Credit only granted for: ECON201 or ECON205. An introduction to how market economies behave at the aggregate level. The determination of national income/output and the problems of unemployment inflation, will be examined, along with monetary and fiscal policy.

ECON 230 Applied Economic Statistics (3) Prerequisite: Must have math eligibility of MATH113 or higher; or 1 course with a minimum grade of C- from (MATH107, MATH110). And minimum grade of C- in ECON200 and ECON201. Recommended: Students should already have basic familiarity with Microsoft Excel or similar spreadsheet software. Restriction: Must be in Economics Bachelor of Arts program. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Introductory course to develop understanding of statistical concepts used in applied economics. Students will acquire skills needed to calculate and interpret statistical concepts, including descriptive statistics, probability, discrete and continuous distributions, sampling, point and interval estimations, hypothesis testing, basic analysis of variance, and simple linear regression models. Students will apply these concepts to data using both handheld calculators and spreadsheets(Excel), and students will be introduced to an econometric software package such as SPSS or SAS or R.

ECON 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ECON 300 Methods and Tools for Economic Analysis (3) Prerequisite: Minimum grade of C- in ECON201 and ECON200. And 1 course with a minimum grade of C- from (MATH140, MATH120, MATH130); or must have completed MATH220 with a minimum grade of C-. Restriction: Must be in Economics Bachelor of Arts program; and must not have completed MATH240 or MATH241. Covers several mathematics techniques and demonstrates their application to a wide variety of models and problems in both microeconomic and macroeconomic analysis. Reviews concepts from algebra and elementary calculus and introduces components of multivariable calculus, linear algebra and differential equations.

ECON 305 Intermediate Macroeconomic Theory and Policy (3) Prerequisite: Minimum grade of C- in ECON201 and ECON200. And 1 course with a minimum grade of C- from (MATH120, MATH140,

MATH130); or must have completed MATH220 with a minimum grade of C-. Credit only granted for: ECON305 or ECON325. Analysis of the determination of national income, employment, and price levels. Discussion of consumption, investment, inflation, and government fiscal and monetary policy.

ECON 306 Intermediate Microeconomic Theory & Policy (3) Prerequisite: 1 course with a minimum grade of C- from (ECON200, AREC250); and minimum grade of C- in ECON201. And 1 course with a minimum grade of C- from (MATH120, MATH140, MATH130); or must have completed MATH220 with a minimum grade of C-. Credit only granted for: ECON306, ECON326, AREC489M, or AREC326. Analysis of the theories of consumer behavior, producer behavior, different market structures, and various sources of inefficient outcomes. Analysis of microeconomic policies designed to improve market outcomes.

ECON 310 European Economic History (3) Prerequisite: ECON201 and ECON200. The evolution of the capitalist system from its medieval origins to the present. Emphasis on dynamic forces of cumulative change in capitalism, including capital accumulation, technology, expansion of markets, the corporate form of private property in the means of production, and the relation of capitalism to war and revolution.

ECON 311 American Economic History Before the Civil War (3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. Restriction: Must be in Economics Bachelor of Arts program. Economic concepts are used to analyze various aspects of the founding and early history of the U.S., including the British settlement of the North American colonies, the economics of the American Revolutionary war, the writing of the Constitution, the development of financial markets, policies on public lands and the spread of western agriculture, slavery, banking, and early industrialization.

ECON 312 American Economics After the Civil War (3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. Restriction: Must be in Economics Bachelor of Arts program. Topics include: the economics of the Civil War, the performance of southern agriculture in the late 19th century, the rise of large corporations, industrialization, the development of financial markets, the creation of the Federal Reserve Board, the economics of the Great Depression and the New Deal, the economic impact of World War II, and the rise of the modern service economy in the late 20th century.

ECON 314 Economic History, Development and Policy (3) Prerequisite: ECON200 and ECON201. Study abroad in the economic history, institutional development, and recent economic policy problems of selected areas.

ECON 315 Economic Development of Underdeveloped Areas (3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. Credit only granted for: ECON315 or ECON416. Analysis of the economic and social characteristics of underdeveloped areas. Recent theories of economic development, obstacles to development, policies and planning for development.

ECON 317 Global Economic Policies (3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. Restriction: Must be in Economics Bachelor of Arts program. Analysis of policy options and debates on fostering economic growth and development in a global economy where national boundaries are no longer relevant. Topics covered will include real loanable funds markets in both local and international contexts during normal conditions and during financial crises, the design of trade and industrial policies, and the role of the World Bank, IMF, WTO, and other international agencies as well as regional and bilateral trade agreements. Emerging economies will be emphasized.

ECON 321 Economic Statistics (3) Prerequisite: Minimum grade of C- in ECON201 and ECON200; and minimum grade of C- in MATH141. Recommended: STAT100. Restriction: Must be in Economics

Bachelor of Science program. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Introduction to the use of statistics in economics. Topics include: Probability, random variables and their distributions, sampling theory, estimation, hypothesis testing, analysis of variance, regression analysis and correlation.

ECON 325 Intermediate Macroeconomic Analysis (3) Prerequisite: Minimum grade of C- in ECON200, ECON201, and MATH141. Restriction: Must be in Economics Bachelor of Science program. Credit only granted for: ECON305 or ECON325. Analysis of macroeconomic behavior and policy with emphasis on theoretical rigor. Topics include the determinants of economic growth, unemployment, inflation, and international economic flows.

ECON 326 Intermediate Microeconomic Analysis (3) Prerequisite: Minimum grade of C- in ECON200, ECON201, and MATH141. Restriction: Must be in Economics Bachelor of Science program. Credit only granted for: ECON306, ECON326, AREC326, or AREC489M. Analysis of economic decision-making by individual buyers and sellers, and resulting market outcomes, with emphasis on theoretical rigor. The efficient properties of perfect competition are examined, followed by consideration of market power, externalities, and asymmetric information.

ECON 330 Money and Banking (3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. The structure of financial institutions and their role in the provision of money and near money. Analysis of the Federal Reserve System, the techniques of central banks, and the control of supply of financial assets in stabilization policy. Relationship of money and credit to economic activity and the price level.

ECON 340 International Economics (3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. Credit only granted for: ECON340 or ECON441. Introduces economic models of international trade and finance. Analyzes policies designed to promote and restrict international trade and to manage exchange rates and impact international capital flows.

ECON 358 Special Topics in Study Abroad III (1-6) Prerequisite: At least one principles level course. Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ECON 375 Economics of Poverty and Discrimination (3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. Examination of various issues, including: the causes of persistent poverty over time for some groups within society; the relationship of poverty to technological change, to economic growth, and to education and training; economic results of discrimination; proposed remedies for poverty and discrimination.

ECON 386 Experiential Learning (3) Prerequisite: ECON201 and ECON200. Restriction: Permission of BSOS-Economics department; and must be in a major within the BSOS-Economics department; and minimum cumulative GPA of 2.5; and junior standing or higher. See Department Advising Office for course eligibility, course requirements, and application information.

ECON 396 Independent Honors Study (3) Restriction: Permission of BSOS-Economics department. First semester of the departmental honors sequence. Students will develop and apply research skills required to carry out original research. By the end of the semester students will have produced a complete draft of an honors thesis resembling a scholarly journal article.

ECON 397 Honors Thesis (3) Prerequisite: ECON396. Restriction: Must be a candidate for honors in economics. General supervision will be provided through assembled meetings with the professor in charge of the course.

ECON 398 Topics in Economics (3) Prerequisite: ECON201 and ECON200. Restriction: Permission of BSOS-Economics department. Repeatable to 6 credits if content differs. This course is designed to meet the changing interests of students and staff. Topics vary in response to those interests. Students are advised to seek information about the coverage and prerequisites during the registration period.

ECON 399 Independent Study in Economics (1-3) Prerequisite: Minimum grade of C- in ECON200 and ECON201. Restriction: Permission of BSOS-Economics department. Repeatable to 6 credits if content differs. Integrated readings and independent study under direction and supervision of a faculty member. Contact department for additional information.

ECON 401 Current Issues in American Economic Policy (3) Prerequisite: 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Recommended: Prior experience with Microsoft Excel or similar spreadsheet software. Restriction: Must be in Economics Bachelor of Arts program. Analysis of current economic problems and public policies. Topics include increasing competitiveness, mitigating poverty, addressing harmful effects of income inequality, promoting environmental sustainability, and facilitating economic stability and growth.

ECON 402 Macroeconomic Models and Forecasting (3) Prerequisite: 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program. Analysis of the fluctuations in economic activity and the formulation and use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.

ECON 406 Advanced Microeconomics (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program. Expands on the assumptions of rational decision-making used in intermediate microeconomics and develops more complicated, more realistic models which address uncertainty, intertemporal choices, strategic interactions, social preferences and considerations of what is fair.

ECON 407 Advanced Macroeconomics (3) Prerequisite: Minimum grade of C- in ECON325; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program. An in-depth analysis of current issues in macroeconomic theory and policy. Topics covered include: 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.

ECON 412 Economic History and Modern Development (3) Prerequisite: Minimum grade of C- in ECON325 and ECON326. Restriction: Must be in Economics Bachelor of Science program. Analysis of major economic, political, and social change in the developed world since 1800. This includes factors contributing to increases in economic performance, changes in the form of government, technological change (including industrialization), and integration and disintegration of the global economy. Emphasis is on institutional changes in how societies organize economic and political activities.

ECON 413 Information and Markets (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in a major within the BSOS-Economics department. Presents advanced microeconomic theory, concentrating on how information affects exchange and market outcomes, including insurance, signaling, reputations, and incentive contracts. Studies applications to various markets and policy questions.

ECON 414 Game Theory (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321, STAT400). Restriction: Must be in one of the following programs (Economics Bachelor of Arts; Economics Bachelor of Science). Credit only granted for: CMSC474, ECON414, GVPT399A or GVPT390. Studies the competitive and cooperative behavior that results when several parties find that their individual outcomes are jointly determined. Students will learn how to use game theory to analyze situations of potential conflict. Applications are drawn from economics, business, and political science.

ECON 415 Market Design (3) Prerequisite: Minimum grade of C- in ECON414. Restriction: Must be in Economics Bachelor of Science program. Focuses on recent developments in the design of markets to improve economic performance and to open new economic opportunities. It is divided into three main segments -- auction design, the design of matching mechanisms, and antitrust theory and policy.

ECON 416 Theory of Economic Development (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program. Credit only granted for: ECON315 or ECON416. Economic theory of the developing nations; role of innovation, capital formation, resources, institutions, trade and exchange rates, and governmental policies.

ECON 418 Economic Development of Selected Areas (3) Prerequisite: 1 course with a minimum grade of C- from (ECON305, ECON306, ECON325, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program. Repeatable to 6 credits if content differs. Economic and institutional characteristics of a specific geographic area are identified and discussed, and alternate strategies and policies for development are analyzed.

ECON 422 Econometrics I (3) Prerequisite: 1 course with a minimum grade of C- from (ECON325, ECON326); and 1 course with a minimum grade of C- from (STAT400, ECON321). Restriction: Must be in Economics Bachelor of Science program. Credit only granted for: ECON422, ECON424, AREC422, or AREC489F. Emphasizes the interaction between economic problems and the assumptions employed in statistical theory. Formulation, estimation, and testing of economic models, including single variable and multiple variable regression techniques, theory of identification, and issues relating to inference.

ECON 423 Econometrics II (3) Prerequisite: Minimum grade of C- in ECON422. Restriction: Must be in Economics Bachelor of Science program. Interaction between economic problems and specification and estimation of econometric models. Topics include issues of autocorrelation, heteroscedasticity, functional form, simultaneous equation models, qualitative choice models, and other computational methods.

ECON 424 Applied Econometrics (3) Prerequisite: 1 course with a minimum grade of C- from (ECON305, ECON306, ECON325, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program. Credit only granted for: ECON422 or ECON424. Provide the knowledge and skills necessary to accomplish and utilize basic applied econometric analysis utilized by many business service providers, government

agencies, and nonprofits engaged in policy analysis. Topics include simple and multiple regressions using cross section, time series, and panel data, issues of heteroskedasticity, serial correlation, and multicollinearity, models with binary dependent variable, and program evaluation. Course emphasizes application of knowledge using software packages but still covers essential theoretical background.

ECON 425 Mathematical Economics (3) Prerequisite: Minimum grade of C- in ECON325 and ECON326. Restriction: Must be in Economics Bachelor of Science program. Mathematical developments of theory of household and firm, general equilibrium and welfare economics, market imperfections, and role of information.

ECON 426 Economics of Cost-Benefit Analysis (3) Prerequisite: 1 course with a minimum grade of C- from (ECON305, ECON306, ECON325, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program. Credit only granted for: ECON398A or ECON426. Formerly: ECON398A. Study of how to use cost benefit analysis and other similar tools of applied microeconomics to conduct policy analyses. Cost-benefit analysis is an empirical method of identifying an optimal choice from a set of policy alternatives, where optimal is defined in terms of economic efficiency. Real world examples are addressed, so that students understand limitations of the methods and also interactions of economic analysis with political and administrative processes.

ECON 427 Experimental Economics (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program. Credit only granted for: ECON398X or ECON427. Formerly: ECON398X. An introduction to the methodology of experimental economics and its application to issues such as decision-making under uncertainty, auctions, and public goods. Also an introduction to behavioral economics as a relatively new area of economic research.

ECON 435 Financial Markets and the Macroeconomy (3) Prerequisite: 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program; and must not have completed BMGT343. Credit only granted for: BMGT343 or ECON435. Additional information: Finance majors will not receive credit for ECON435. The different types of financial assets that exist, the markets that they trade in, and the determination of their prices and rates of return are examined. Specific topics that will be covered include the Markowitz portfolio selection model, the capital asset pricing model, the arbitrage pricing theory, the efficient markets hypothesis, the term structure of interest rates, and options. There will be almost no emphasis on issues in corporate finance.

ECON 441 Theory of International Economics (3) Prerequisite: Minimum grade of C- in ECON326 and ECON325. Restriction: Must be in a major within the BSOS-Economics department; and must not have completed ECON340, ECON442, or ECON443. Credit only granted for: ECON340, ECON441, ECON442, or ECON443. Theoretical treatment of international trade and international finance. Includes Ricardian and Heckscher-Ohlin theories of comparative advantage, analysis of tariffs and other trade barriers, international factor mobility, balance of payments adjustments, exchange rate determination, and fiscal and monetary policy in an open economy.

ECON 442 Globalization and Capital Markets (3) Prerequisite: Minimum grade of C- in ECON326 and ECON325; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program; and must not have completed ECON441. Credit only granted for: ECON441 or ECON442. Uses models of open-economy macroeconomics to explain the

causes and consequences of international capital flows. Analysis is made of private consumption, investment, the government sector, current accounts, the labor market, and the money and foreign exchange markets in small open economies. This framework is then used to study examples of how speculative attacks on currencies, sudden reversals of capital inflows, and the effects of the lack of credibility of economic policy affect economic development.

ECON 443 International Trade and Trade Policy in the New Global Economy (3) Prerequisite: 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program; and must not have completed ECON441. Credit only granted for: ECON441 or ECON443. Examines the economics of international economic integration, including the theory of customs unions and free trade areas, the role of GATT and the WTO, changes in individual countries' foreign trade policies during the new era of globalization, the special role of multinational firms in world trade, and recent controversies about the benefits and costs of globalized trade.

ECON 451 Public Choice (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program. Analysis of collective decision making, economic models of government, program budgeting, and policy implementation; emphasis on models of public choice and institutions which affect decision making.

ECON 454 Public Finance and Public Policy (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program. The role of the the public sector in a market economy constitutes the over-arching topic of this course. Emphasis lies on analyzing government expenditure programs and the microeconomics of tax policy.

ECON 456 Law and Economics (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program. Relationship of the exchange process to the system of institutions and rules that society develops to carry out economic transactions. Topics covered include: Property rights; torts, negligence, and liability; contracts and exchanges; criminal control and enforcement; equity and efficiency issues .

ECON 458 Special Topics in Study Abroad IV (1-6) Prerequisite: At least one intermediate theory course and/or statistics. Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ECON 460 Industrial Organization (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program. Examines different theoretical models of firm behavior in markets with varying amounts of market power. Relates theory to specific industries and examines how market structure evolves over time.

ECON 461 Economics of Regulation and Anti-trust (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321). Restriction: Must be in Economics Bachelor of Arts program. Considers government intervention in economic activity of three types: antitrust policy, regulation of natural

monopolies, and health safety regulation. Covers theoretical models, real-world policy applications, and empirical studies relevant to the impact of regulation.

ECON 462 Economics of Entrepreneurship (3) Prerequisite: Minimum grade of C- in ECON422. Restriction: Must be in Economics Bachelor of Science program. Credit only granted for: ECON398O or ECON462. Formerly: ECON398O. Economic theory highlights the role of entrepreneurs in fueling economic growth and accomplishing reallocation of resources in response to changes in preferences, technology, demographics, and resource. This course uses empirical evidence to examine the extent to which these predictions are valid. To more fully understand the motivations and constraints relevant to entrepreneurs, student will write a business plan as if s/he were starting a new business.

ECON 463 Economics of Sports (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON230, BMGT230, ECON321, STAT400). Restriction: Must be in Economics Bachelor of Arts program. The application of theoretical and empirical economic tools to the sports industry, including competition at professional,collegiate, and international levels. Microeconomic models from labor, industrial organization and public finance will be applied to the sports industry and combined with data from sports markets, providing students with opportunities to produce and interpret economic analysis. The topic of discrimination will also be explored in the context of this particular economic activity.

ECON 465 Health Economics (3) Prerequisite: Minimum grade of C- in ECON406 and ECON422; or students who have completed ECON321 or STAT400 with an A- or better and are concurrently enrolled in ECON422, may seek permission to enroll in ECON465 from an ECON advisor. No exceptions will be made for the ECON406 prerequisite. Restriction: Must be in Economics Bachelor of Science program. Analyze markets for health care and related products by understanding the incentives and constraints for various participants, including individuals, family units, doctors, pharmaceutical companies, hospitals, and insurance providers. Analysis will combine both theoretical models and empirical tools.

ECON 468 Special Topics in Applied Economics (3) Prerequisite: 1 course with a minimum grade of C- from (BMGT230, ECON230); and 1 course with a minimum grade of C- from (ECON305, ECON306). Restriction: Must be in Economics program. Repeatable to 15 credits if content differs. Selected topics in applied economics. Designed to meet the changing interests of students and staff.

ECON 470 Labor Economics:Theory and Evidence (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in Economics Bachelor of Science program. An analytical treatment of theories of labor markets, and an examination of empirical findings, evidence and conclusions. Topics covered will include some or all of the following: labor demand; labor supply and labor market participation; theory of human capital; earnings differentials; and if time allows, market structure and the efficiency of labor markets; and unemployment.

ECON 471 Labor Markets (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and minimum grade of C- in ECON424. Restriction: Must be in Economics Bachelor of Arts program. Credit only granted for: ECON470 or ECON471. Central topics include the determinants of firms' demand for labor and households' decision making about whether to work, how much to work, and where to work. We will then study the equilibrium amount of labor hired in society and the wages paid to workers. The course will also include the measurement of the labor market, human capital, discrimination, incentives, and current changes in the American economic landscape. Various economic policies impacting labor markets will be analyzed.

ECON 472 Economics of Social Safety Nets (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and minimum grade of C- in ECON424. Restriction: Must be in Economics Bachelor of Arts program. Analysis of the economic issues associated with social safety nets. Topics to be covered include the cash transfer programs for breaking the cycle of poverty, labor market policies aimed at combating unemployment, childhood interventions to improve human capital development, and the challenges faced by of pension systems over the world. The approach is based on a life-cycle perspective. Evidence and experiences from developed and developing countries will covered.

ECON 481 Theory and Policy in Environmental Economics (3) Prerequisite: Minimum grade of C- in ECON326; and 1 course with a minimum grade of C- from (ECON321, STAT400). Restriction: Must be in a major within the BSOS-Economics department; or must be in a major in AGNR-Dean-Environmental Science & Policy Program. Application of economic theory and empirical tools to the analysis of environmental issues. The concepts of externalities, public goods, property rights and cost-benefit analysis are applied to air pollution, water pollution, solid waste management, hazardous waste, and global warning. The optimal role and various tools of public policy are addressed.

ECON 488 Applied Market Research Practicum (1-3) Prerequisite: 1 course with a minimum grade of B- from (BMGT230, ECON321, ECON230); and 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326). Recommended: ECON422, ECON402, or ECON424. Restriction: Permission of BSOS-Economics department. Repeatable to 6 credits if content differs. Students gain experience applying economic knowledge and producing market research valued by businesses, non-profits, and/or government agencies. Students engage in activities similar to what an intern or entry-level employee would perform. Students work in small groups to find different kinds of data and facts, analyze and interpret this information, and use research findings to develop and present recommendations for simulated clients.

ECON 490 Urban & Regional Economics: Issues and Policies (3) Prerequisite: 1 course with a minimum grade of C- from (ECON306, ECON326); and 1 course with a minimum grade of C- from (ECON321, BMGT230, ECON230). Restriction: Must be in Economics Bachelor of Arts program. Credit only granted for: ECON398I or ECON490. Formerly: ECON398I. Exploration of urban and regional economics and policies, including economic forces leading to formation of city and regional networks. Conceptual and empirical analysis of policies affecting land use, housing, transportation and other aspects of sub-national economic development.

ECON 498 Special Topics in Economic Analysis (3) Prerequisite: 1 course with a minimum grade of C- from (ECON321, STAT400); and 1 course with a minimum grade of C- from (ECON325, ECON326). Restriction: Must be in Economics Bachelor of Science program. Repeatable to 15 credits if content differs. Selected topics in economic analysis. Designed to meet the changing interests of students and staff.

ECON 499 Independent Research in Economics (1-3) Prerequisite: 1 course with a minimum grade of C- from (ECON230, ECON321, BMGT230, STAT400); and 1 course with a minimum grade of C- from (ECON305, ECON325); and 1 course with a minimum grade of C- from (ECON306, ECON326); and minimum of 3 credits from ECON400-499 course range. Restriction: Permission of BSOS-Economics department. Repeatable to 6 credits if content differs. Directed research under the supervision of a faculty member. Contact department for additional information.

EDCI -- Curriculum and Instruction

EDCI 210 Exploring Teaching as a Career (3) Weekly participation as a volunteer tutor in a local school or community program with children or adolescents. Regular campus meetings assist with developing teaching skills and insight.

EDCI 211 Tutoring: Helping Children Learn (1) Additional information: Should not be taken concurrently with EDCI 210. Experience as a tutor for individual or small groups of children or adolescents in local schools or community centers. Campus meetings assist in skill development.

EDCI 243 Attitudes and Beliefs about the "Other" in Literature, Film and the Media (3) An examination of the ways various media represent dominant and non-dominant identities and the parameters for acceptable social behavior, and how these sociocultural forces shape personal identities, cultural competence and interpersonal power dynamics.

EDCI 246 Good Stories: Teaching Narratives for Peace and Justice (3) Through the study and use of oral storytelling and digital technologies, explore qualities and characteristics of what makes a good story and how stories can be used to advance peace and justice on both individual and social levels.

EDCI 280 Looking Inside Schools and Classrooms (3) An exploration of teaching in public schools, grades 1-12: student diversity, societal changes, and the expectations of teachers and public schools. Three hour per week field component.

EDCI 281 Cultural Competence, Leadership, and You (3) Understanding aspects of global cultural competence, one's own biases, and research methods for understanding one's self and one's relationship to other cultures. Application to campus setting.

EDCI 286 Latino and Black Schooling: A History (3) The historical, cultural, political and socio-economic factors that shape the school experience and achievement (Kindergarten - college) of Latinos and Blacks in the U.S.

EDCI 288 Special Topics in Teacher Education (1-3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits if content differs.

EDCI 297 Students, Schooling, and Communities (3) Corequisite: EDCI280. Facilitates pre-service teachers' initial look at their personal backgrounds and the ways in which they view the world. Exploration of schools, students and their connections to communities. Draws on preservice teachers' concurrent field experiences.

EDCI 298 Special Problems in Teacher Education (1-6) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits if content differs.

EDCI 301 Teaching Art in the Elementary School (3) Restriction: Must not be in Secondary Educ: Art program. And must be in Elementary Education program; or must be in the Pre-elementary Education program. Art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools. Emphasis on emerging areas of art education for the elementary classroom teacher.

EDCI 322 Curriculum and Instruction in Elementary Education: Social Studies (3) Corequisite: EDCI362, EDCI397, EDCI489, and TLPL306. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching and Learning, Policy and Leadership department. Curriculum, organization and methods of teaching, evaluation of materials, and

utilization of environmental resources. Emphasis on multicultural education. Includes laboratory/field experiences.

EDCI 342 Curriculum and Instruction in Elementary Education: Language Arts (3) Prerequisite: EDCI397. Corequisite: EDCI352, EDCI362, EDCI372, and EDCI322. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Elementary Education program. Listening, oral communication, functional writing, creative writing, spelling, handwriting, and creative expression. Includes laboratory/field experiences.

EDCI 352 Curriculum and Instruction in Elementary Education: Mathematics (3) Prerequisite: EDCI397. Corequisite: EDCI362, EDCI342, EDCI372, and EDCI322. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Materials and procedures to help children sense arithmetical meanings and relationships. Development of an understanding of the number system and arithmetical processes. Includes laboratory/field experiences.

EDCI 355 Field Experience in Secondary Mathematics Education (1) Prerequisite: Minimum of 6 credits from MATH400-499 course range. Corequisite: EDCI 455. Restriction: Must be in Secondary Educ: Mathematics program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as an aide to two secondary mathematics teachers (middle grades and high school); assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 360 Field Experience in Middle School (1) Prerequisite: EDCI457 and EDCI411; or permission of instructor. Corequisite: EDCI413 and EDCI424. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in the Middle School Teacher Education Program. Credit only granted for: EDCI355, EDCI360 or EDCI375. A Middle-school field experience that precedes student teaching.

EDCI 362 Materials and Instruction for Creating Skilled and Motivated Readers, Part 2 (3) Corequisite: EDCI322, EDCI397, TLPL306, and EDCI489. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Selecting, evaluating, and using a variety of materials and instructional techniques to create skilled and motivated readers in the elementary grades, particularly in diverse classroom settings; Topics include word analysis, spelling, writing, reading comprehension strategies, directed reading lessons and explicit instruction.

EDCI 372 Curriculum and Instruction in Elementary Education: Science (3) Prerequisite: EDCI397. Corequisite: EDCI352, EDCI362, EDCI342, and EDCI322. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Objectives, methods, materials and activities for teaching science in the elementary school; emphasis on teaching strategies which help children learn the processes and concepts of science. Includes laboratory/field experiences.

EDCI 375 Field Experience in Science Education (1) Corequisite: EDCI470. Restriction: Must be in Secondary Educ: Science program. This field experience course is designed to provide prospective teachers with knowledge of theory and best school practice relevant to effective pedagogy, current educational goals, and trends in educational assessment in a public school environment. Topics includes planning, instructional delivery, diversity and individual differences, classroom management, technology, and inclusion of students with special needs.

EDCI 386 Experiential Learning (3-6) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and junior standing or higher.

EDCI 397 Principles and Methods of Teaching in Elementary Schools (3) Corequisite: EDCI322, EDCI362, TLPL306, and EDCI489. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Teaching strategies, classroom interactive techniques, and procedures for planning and evaluating instruction in elementary schools. Emphasis on principles of effective instruction, classroom management, and adaptation of instruction for various student populations.

EDCI 400 Field Experience in Art Education (1) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Art program. Practical classroom experience in teaching/evaluating/exhibiting the products of art lessons.

EDCI 401 Student Teaching in Elementary School: Art (4-8) Prerequisite: EDCI405. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Art program.

EDCI 402 Student Teaching in Secondary Schools: Art (2-8) Prerequisite: EDCI405. Restriction: Minimum cumulative GPA of 2.75; and must be in Secondary Educ: Art program; and permission of Teaching and Learning, Policy and Leadership Department.

EDCI 403 Introduction to Teaching Art in Schools (3) Restriction: Minimum cumulative GPA of 2.75. Introduction to the field of Art Education and the role of the visual arts in grades PreK-12 for today's diverse school populations. The fundamental, historical and philosophic components of art education with an emphasis on arts disciplines and curriculum. Includes a school-based practicum. For those considering art education as a major.

EDCI 404 Student Teaching Seminar: Art Education (3) Prerequisite: EDCI405 and EDCI400. Corequisite: EDCI402 and EDCI401. Restriction: Minimum cumulative GPA of 2.75; and must be in Secondary Educ: Art program. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

EDCI 405 Art Education Methods I (3) Restriction: Must be in Secondary Educ: Art program; or must be in Secondary Educ: Art pre-major program. And minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Credit only granted for: EDCI300 or EDCI405. Formerly: EDCI300. Methods I provides future art teachers with a knowledge base of the theories and best practices of effective pedagogy for: teaching methods and strategies, diversity, motivational techniques, classroom management, assessment and evaluation methods, and accommodating all students including those with special needs.

EDCI 406 Technology and Two-Dimensional Art (3) Prerequisite: ARTT210. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and junior standing or higher; and must not be in any of the following programs (Early Childhood Education; Elementary Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Physical Education; Music Education; Special Education). A discussion/studio format used to develop skills, materials, resources and education strategies for using technology and two-dimensional art in K-12 programs.

EDCI 407 Practicum in Art Education: Three-Dimensional (3) Restriction: Must be in Secondary Educ: Art program; or must be a Pre-Art Education Major. A lecture-studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings.

EDCI 410 Methods I: K-12 World Language Methods and Technology (3) Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Credit only granted for: EDCI330 or EDCI410. Formerly: EDCI330. The first of two sequential courses required for achieving competence i teaching a foreign language. The sequel to this course is EDCI433 (Methods II) entitled: Advanced K-12 Foreign Language Methods and Technology. EDCI410 requires on-going examination of theories relevant to language acquisition. Students will also investigate the instructional methods that reflect those theories. Lab and field experiences required.

EDCI 411 Knowledge, Reasoning, and Learning in Science (3) Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Credit only granted for: EDCI370 or EDCI411. Formerly: EDCI370. For prospective science teachers. Investigations of the nature of knowledge, reasoning, and learning in middle and secondary science. Readings from cognitive science and science education research; studies of student thinking in interview and classroom observations; analyses of curricula. Includes laboratory and field experiences.

EDCI 413 Interdisciplinary Teaching in the Middle Grades I (2) Prerequisite: EDCI457 and EDCI411; or permission of instructor. Corequisite: EDCI360 and EDCI424. Restriction: Minimum cumulative GPA of 2.75; and must be in the Middle School Teacher Education Program, major code 0804P. For prospective middle school teachers. Studying and planning interdisciplinary instructional practices in middle school. Utilizes context and experiences from students' field placements. Use of technology and incorporation of technology into instruction.

EDCI 414 Interdisciplinary Teaching in the Middle Grades II (2) Prerequisite: EDCI360 and EDCI413. Corequisite: EDCI425 and EDCI460. Restriction: Minimum cumulative GPA of 2.5; and must be in the Middle School Teacher Education Program. For prospective middle school teachers. Planning and implementing interdisciplinary instructional practices in middle school. Draws on the context of and experiences in the student teaching placement. Use of technology and incorporation of technology into instruction.

EDCI 416 Teaching and Learning in Secondary Education: English (3) Credit only granted for: EDCI340 or EDCI416. Formerly: EDCI340. An introduction for prospective middle and secondary English teachers into the basic issues, concepts, orientations, and processes that shape the teaching of English for diverse students in schools. Candidates explore their own perspectives in relation to local and national trends and develop basic teaching understanding and skills through on-campus seminars, teaching laboratory experiences, and guided field experiences. Students should reserve one full day or two half days per week for field experience.

EDCI 417 Bases for English Language Instruction (3) Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Examines current theory, research, best practice, curricula and materials focused on the teaching of English language to native and non-native English learners. Topics include morphology, syntax, semantics, vocabulary, pragmatics, argument, discourse structure, dialects, edited academic English, English language proficiency (listening, speaking, reading, writing) assessment, and instructional planning. English Language Learner (TESOL and SIOP) and special needs (inclusion) pupil issues considered.

EDCI 420 Student Teaching Seminar in Secondary Education: Social Studies (1) Prerequisite: EDCI426 and EDCI427. Corequisite: EDCI421 and EDCI422. Restriction: Minimum cumulative GPA of 2.75. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

EDCI 421 Student Teaching in Secondary Schools: Social Studies/History (12) Prerequisite: Admission to teacher education program. Corequisite: EDCI420. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Social Studies program.

EDCI 422 Student Teaching in Secondary Schools: Social Studies/Geography (12) Prerequisite: EDCI321. Corequisite: EDCI420.

EDCI 423 Art Education Methods II (3) Prerequisite: EDCI405; or students who have taken courses with comparable content may contact the department. Corequisite: EDCI400. Restriction: Minimum cumulative GPA of 2.75; and must be in Secondary Educ: Art program. Methods II builds upon the pedagogical foundation of Methods I and provides future art teachers with the means for developing pre K-12 art lessons and unit plans for a balanced qualitative art program for today's diverse and inclusive schools and classrooms.

EDCI 424 Equitable Classrooms (2) Prerequisite: EDCI297, EDCI457, and EDCI411. Corequisite: EDCI360 and EDCI413. Restriction: Minimum cumulative GPA of 2.75; and must be in Middle School Education program. An exploration and application of major theoretical frameworks surrounding equity and critical pedagogy. Creating habits of mind that help teachers see all students as capable of achieving at high levels. Draws on the concurrent field experience.

EDCI 425 Equity and Pedagogy (2) Prerequisite: EDCI424. Corequisite: EDCI414 and EDCI460. Restriction: Minimum cumulative GPA of 2.75; and must be in one of the following programs (Middle School Education; Early Childhood Education; Elementary Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Physical Education; Music Education; Secondary Educ: Art; Special Education). An exploration and application of major theoretical frameworks surrounding equity and critical pedagogy. Pedagogical decision making that leads to greater equity and improved student learning for all students. Draws on the concurrent student teaching experience.

EDCI 426 Knowledge, Reasoning, and Learning in Secondary Social Studies (3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and minimum cumulative GPA of 2.75. An exploration of the nature of knowledge and reasoning in social studies disciplines as well as how students learn social studies. Assessment and investigation of students' conceptions and misconceptions as well as their disciplinary thinking. Implications for teaching and initial lesson design are explored through on-campus seminars as well as guided field experiences. Students should reserve a regular half-day per week for the field experience in local schools. This course is required for admission to the secondary social studies double major.

EDCI 427 Curriculum, Teaching, and Assessment in Secondary Social Studies (3) Prerequisite: EDCI426. Corequisite: EDCI428. Restriction: Must be in Secondary Educ: Social Studies program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Center for Learning & Educational Technology. An exploration of curriculum development, teaching, and assessment in secondary history/social studies. Focus on identifying students' conceptions of social studies topics and designing lessons that advance students' disciplinary thinking and understanding.

EDCI 428 Field Experience in Secondary Social Studies Teaching (1) Corequisite: EDCI427. Restriction: Must be in Secondary Educ: Social Studies program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as an aide to a regular social studies teacher; assigned responsibilities and participation in a variety of teaching/learning activities. Students must reserve one full day per week for internship placement.

EDCI 430 Student Teaching Seminar in Secondary Education: World Language (1) Prerequisite: EDCI410 and EDCI433. Corequisite: EDCI431 and EDCI474. Restriction: Must be in Secondary Educ: Foreign Languages program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. An analysis of teaching theory, strategies and techniques in the internship experience.

EDCI 431 Teaching Internship in Secondary Schools: World Language (12) Prerequisite: EDCI410 and EDCI433. Corequisite: EDCI430 and EDCI474. Restriction: Minimum cumulative GPA of 2.75; and must be in Secondary Educ: Foreign Languages program. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Additional information: Internship lab fee applies. See current program description for details. Practical experience as a full-time intern with a fully licensed World Language teacher in a diverse school setting; assigned professional responsibilities and participates in teaching/learning experiences.

EDCI 432 Issues in the Education of English Language Learners (3) Credit only granted for: EDCI432 or EDCI488Q. Formerly: EDCI488Q. Introduction to and analysis of current and historical research, practice, trends, and public policy issues in education as they relate to English language learners in K-12 and other settings.

EDCI 433 Advanced K-12 World Language Methods and Technology (3) Prerequisite: EDCI410. Corequisite: EDCI438. Restriction: Must be in Secondary Educ: Foreign Languages program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Teaches advanced best practices for effective foreign language instruction. Topics include: using authentic assessment and materials, applying national standards, teaching writing and culture, motivating students, providing strategy instruction, infusing technology, preparing for K-12 employment, and creating a professional portfolio.

EDCI 434 Pedagogy of Teaching English Language Learners (3) A survey of the historical and current approaches, methods, and techniques of teaching English to speakers of other languages, from grammar translation and audiolingual to communicative and task-based approaches will be presented. Additionally, successful classroom practices that address the needs of culturally diverse and language minority students will be analyzed. Students will have the opportunity to discuss, probe and apply theories and principles to hands-on teaching practices in real-life settings. Digital technologies that assist teaching English language learners (ELLs) will be emphasized as well.

EDCI 435 Teaching English Language Learners Reading and Writing in the Secondary Content Areas (3) Analysis of approaches to curriculum, current research, theory, and pedagogy of reading and writing to second language students from diverse cultural and linguistic backgrounds. State Approved. Required for TESOL certification program.

EDCI 436 Understanding Cross-Cultural Communication for Teaching English Language Learners (3) Credit only granted for: EDCI436 or EDCI488T. Formerly: EDCI488T. Theories of intercultural communication and techniques for applying them in the teaching of English as a second language (ESL)

and content classes. Research and evaluation of selected aspects of a culture as basis for creating, selecting and using culturally-responsive teaching materials and methods.

EDCI 437 English Grammar Pedagogy for Teachers of English Language Learners (3) Credit only granted for: EDCI437 or EDCI488P. Formerly: EDCI488P. Methods of teaching English grammar to English language learners. The role of teaching grammar. Effective methods and techniques for incorporating grammar in other communication activities.

EDCI 438 Field Experience in Second Language Education (1) Corequisite: EDCI330. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Foreign Languages program. Repeatable to 3 credits if content differs. Practical experience as an aide to a regular foreign language teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 440 Internship Seminar in Secondary Education: English (1) Prerequisite: EDCI447 and EDCI467. Corequisite: EDCI441 and EDCI474. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. A review and analysis of current instructional theories, strategies and best practice in relation to the teaching internship. Meets at area high school; location provided before first meeting.

EDCI 441 Internship in Secondary Schools: English (12) Prerequisite: EDCI447 and EDCI467. Corequisite: EDCI440 and EDCI474. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as a full-time intern with a fully licensed English teacher in a diverse school setting; assigned professional responsibilities and participates in teaching/learning experiences. Internship lab fee applies. See current program description for details.

EDCI 443 Literature for Children and Youth (3) Restriction: Must be in Elementary Education program; or must be a Pre-Education Major. Analysis of literary materials for children and youth. Timeless and ageless books, and outstanding examples of contemporary publishing. Evaluation of the contributions of individual authors, illustrators and children's book awards.

EDCI 447 Field Experience in English Teaching (1) Corequisite: EDCI467. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as a part-time intern working with a fully licensed English teacher in a diverse school setting. Students must reserve one full day or two half days per week for the part-time internship.

EDCI 448 Student Teaching in Secondary Schools: Theatre/English (12) Prerequisite: EDCI417. Corequisite: EDCI440. Restriction: Must be in Secondary Educ: English Language Arts program. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 450 Internship Seminar in Secondary Education: Mathematics (1) Prerequisite: EDCI457 and EDCI455. Corequisite: EDCI451 and EDCI474. Restriction: Must be in Secondary Educ: Mathematics program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Strategies and techniques in the internship experience. Structured work on teaching portfolio (requirement for graduation and certification). Place, day, and time to be arranged.

EDCI 451 Student Teaching in Secondary Schools: Mathematics (12) Corequisite: EDCI450. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Secondary Educ: Mathematics program.

EDCI 455 Teaching and Learning High School Mathematics (3) Prerequisite: Must have 2 semesters of calculus; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Corequisite: EDCI355. Restriction: Must be in Secondary Educ: Mathematics program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Methods of teaching and assessing the high school mathematics curriculum; aligning tasks and activities to curriculum standards; lesson planning; and selection and use of technology. The course also focuses on managing large group dynamics in the high school mathematics classroom.

EDCI 457 Teaching and Learning Middle School Mathematics (3) Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Methods of teaching and assessing the middle school mathematics curriculum. Understanding the conceptual difficulties students have in moving from whole numbers to rational numbers, additive thinking to multiplicative thinking, and arithmetic to algebra. Lesson planning and selection of technology and other materials are applied in the context of supervised tutoring of students having difficulty in middle school mathematics. Lab and field experience required. Supervised tutoring takes place on site at a local middle school therefore EDCI 457 students will be expected to travel to a local middle school for 8-10 of the class meetings.

EDCI 460 Student Teaching: Middle School (12) Prerequisite: EDCI413. Corequisite: EDCI414 and EDCI425. Restriction: Minimum cumulative GPA of 2.5; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and for Middle School Education majors only. A Middle-school student teaching experience in two content areas.

EDCI 461 Materials and Instruction for Creating Skilled and Motivated Readers, Part I (3) Restriction: Must be in Elementary Education program; and junior standing or higher. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Selecting, evaluating, and using a variety of materials and instructional strategies to create skilled and motivated readers in the elementary grades; Topics include emergent literacy, vocabulary development, reading comprehension and oral reading fluency in diverse classroom settings.

EDCI 462 Materials and Instruction for Creating Skilled and Motivated Readers, Part II (3) Prerequisite: EDCI397 and EDCI461. Corequisite: EDCI352, EDCI342, EDCI372, and EDCI322. Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Elementary Education program. Selecting, evaluating, and using a variety of materials to create skilled and motivated readers in the elementary grades, particularly in diverse classroom settings; Topics include word analysis, spelling, writing, reading comprehension strategies, directed reading lessons, and explicit instruction.

EDCI 463 Reading in the Secondary School (3) Restriction: Minimum cumulative GPA of 2.75; and must be in one of the following programs (Middle School Education; Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Secondary Educ: Art) ; and permission of department required for post-baccalaureate students. Provides secondary school teachers with understanding the need for and approaches to teaching students to read and learn from content area texts.

EDCI 464 Assessment for Reading (3) Prerequisite: EDCI362. Restriction: Senior standing. And must be in Elementary Education program; or must be in Early Childhood Education program. Examination of reading assessment theory, materials and procedures; Topics include validity and reliability in reading assessment, formal and informal assessment, reading instruction that is informed by ongoing assessment, and the effects of assessment on students and schooling in a diverse society.

EDCI 466 Literature for Adolescents (3) Restriction: Minimum cumulative GPA of 2.75; and permission of EDUC-Teaching, Learning, Policy and Leadership department. Reading and analysis of fiction and nonfiction; methods for critically assessing quality and appeal; current theory and methods of instruction; research on response to literature; curriculum design and selection of books.

EDCI 467 Teaching Writing (3) Corequisite: EDCI447. Restriction: Must be in Secondary Educ: English Language Arts program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Examines current theory, research, best practice, curricula and materials for teaching written communication in grades K-12. Focuses on analytical, argumentative, informative/explanatory, literary analysis, narrative, descriptive, and research writing. Emphasizes instructional planning, assessment, writer problem-solving strategies, information search, development, organization and style appropriate to task, purpose and audience for both non-digital and digital text. English Language Learner and special needs pupil issues considered.

EDCI 470 Learning and Teaching in Science (3) Prerequisite: EDCI411; or permission of instructor. Restriction: Must be in Secondary Educ: Science program. Studies of student learning and instructional practices in science teaching.

EDCI 471 Internship in Secondary Schools: Science (12) Prerequisite: EDCI470. Corequisite: EDCI480 and EDCI474. Restriction: Must be in Secondary Educ: Science program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Practical experience as a full-time intern with a fully licensed science teacher in a diverse school setting; assigned professional responsibilities and participates in teaching/learning experiences. Internship lab fee applies. See current program description for details.

EDCI 474 Teaching Academically, Culturally, and Linguistically Diverse Students in Secondary Education (2) Corequisite: Enrolled in internship/certification area. Restriction: Must be in one of the following programs (Secondary Educ: Science; Secondary Educ: English Language Arts; Secondary Educ: Mathematics; Secondary Educ: Foreign Languages; Secondary Educ: Social Studies; Secondary Educ: Art) ; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. Multi-disciplinary capstone course for Secondary Education majors. Discussion of pedagogical and content issues relevant for teaching academically, culturally, and linguistically diverse students with particular emphasis on students with special educational needs and English language learners. Students develop and use curriculum-based assessments and/or lessons with these groups of students.

EDCI 475 Embracing Diversity in the Classroom Community (3) Restriction: Admission to teacher education program; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Credit only granted for: EDCI475 or EDCI488L. Formerly: EDCI488L. An exploration of the richness and complexity of student diversity that teacher candidates will encounter in K-12 classrooms. Students will engage in critical reflection around diversity and equity issues.

EDCI 480 Practices in Secondary School Science Teaching (2) Prerequisite: EDCI470. Corequisite: EDCI471 and EDCI474. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership

department; and must be in Secondary Educ: Science program. Or minimum cumulative GPA of 2.75. Credit only granted for: EDCI480 or EDCI488J. Formerly: EDCI488J. Analyses of student thinking, instructional interpretations, strategies, and techniques in the teaching internship.

EDCI 481 Student Teaching: Elementary (12) Prerequisite: EDCI352, EDCI362, EDCI342, EDCI372, and EDCI322. Corequisite: EDCI464. Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department; and must be in Elementary Education program; and minimum cumulative GPA of 2.75.

EDCI 485 Student Teaching in Elementary School: Physical Education (4-8) Restriction: Must be in Physical Education program. Fulfills elementary teaching requirements in K-12 physical education programs.

EDCI 488 Selected Topics in Teacher Education (1-3) Restriction: Must be in a major within EDUC-Teaching, Learning, Policy and Leadership department; or must be in Curriculum and Instruction (Doctoral) program; or must be in Curriculum and Instruction (Master's) program; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits if content differs.

EDCI 489 Field Experiences in Education (1-4) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 4 credits.

EDCI 495 Student Teaching in Secondary Schools: Physical Education (2-8) Restriction: Must be in a major within EDUC-Teaching, Learning, Policy and Leadership department; or must be in Curriculum and Instruction (Doctoral) program; or must be in Curriculum and Instruction (Master's) program.

EDCI 497 The Study of Teaching (3) Prerequisite: EDCI481. Corequisite: EDCI489. Identification and examination of learner and teacher outcome variables related to teaching systems, methods, and processes. Methods of conducting classroom research.

EDCI 498 Special Problems in Teacher Education (1-6) Restriction: Must be in a major within EDUC-Teaching, Learning, Policy and Leadership department; or must be in Curriculum and Instruction (Doctoral) program; or must be in Curriculum and Instruction (Master's) program; or permission of EDUC-Teaching, Learning, Policy and Leadership department. Repeatable to 6 credits. Individual study of approved problems.

EDCI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDCP -- Education Counseling and Personnel Services

EDCP 108 College and Career Advancement: Concepts and Skills (1) Repeatable to 3 credits if content differs. Knowledge and skills designed to enhance college as a learning experience or preparation for life.

EDCP 217 Introduction to Student Leadership (3) Restriction: Freshman standing; or sophomore standing. Credit only granted for: EDCP217 or EDCP317. Formerly: EDCP317. Introduction to leadership theories, concepts, and skills. Completion of personal and leadership self-assessments, values exploration, and small group application.

EDCP 220 Introduction to Human Diversity in Social Institutions (3) This highly-interactive format focuses on individual and social identities in the U.S., group differences and intergroup relations, systems of privilege and oppression, and advocacy for social justice. Topics will include diversity related to race, ethnicity, gender, sexual orientation, social class, (dis)ability, and religion. Course fulfills CORE requirements in diversity, social/behavioral bases, and interdisciplinary study. Some sections restricted.

EDCP 298 Special Problems in Counseling and Personnel Services (1-3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Individual instruction in special problems related to counseling, student leadership, and college student development.

EDCP 310 Peer Counseling Theory and Skills (3) The theories and skills of peer helping relationships. Counseling theories and skills at a level appropriate for students seeking basic level training for use in peer counseling settings.

EDCP 312 Multi-Ethnic Peer Counseling (3) Restriction: Sophomore standing or higher. Formerly: EDCP310A. Knowledge, skills, and attitude to function as peer helpers of Multi- Ethnic students.

EDCP 325 Substance Use and Abuse in American Society (3) Incidence, etiology, effects and management of substance use and abuse from perspective of the individual, the family, and society.

EDCP 386 Experiential Learning (3-6) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; and sophomore standing or higher.

EDCP 411 Principles of Mental Health (3) Prerequisite: 9 semester hours in the behavioral sciences; or permission of EDUC-Counseling, Higher Education and Special Education department. Mechanisms involved with personal adjustment, coping skills, and the behaviors that lead to maladjustment.

EDCP 418 Special Topics in Leadership (3) Repeatable to 6 credits if content differs. The special topics and leadership course will address a single topic related to leadership through the semester. In-depth study and analysis on the topic will be the basis for the course. Topics include gender and leadership, ethics and leadership, and culture and leadership. Leadership will serve as the foundation in the course.

EDCP 420 Advanced Topics in Human Diversity and Advocacy (3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. This course will build upon students' knowledge of diversity in American society and will examine contemporary topics related to multiculturalism in educational and community contexts as well as strategies for advocacy in such venues. This course fulfills CORE requirements in diversity.

EDCP 462 Disability in American Society (3) Restriction: Must have earned a minimum of 30 credits; and sophomore standing or higher. Critical examination of the history of discrimination and analysis of current policies toward people with severe physical and mental disabilities.

EDCP 489 Field Experiences in Counseling and Personnel Services (1-4) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDCP 498 Special Problems in Counseling and Personnel Services (1-3) Prerequisite: Available only to major students who have formal plans for individual study of approved problems. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Available only to major students who have formal plans for individual study of approved problems.

EDCP 499 Workshops, Clinics, Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Department of Counseling and Personnel Services (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing; clinical experiences in counseling and testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups.

EDHD -- Education, Human Development

EDHD 201 Learning How to Learn (3) Immerses students in the theoretical and empirical study of learning by engaging them in orchestrated experiences and activities drawn directly from the disciplinary research. Students achieve deep understanding of their own learning, as well as the means of enhancing that learning both in school and out-of-school contexts.

EDHD 210 Foundations of Early Childhood Education (3) Students explore historical and current research in early childhood education, primary models of curriculum and pedagogy in the field, and the relationship between critical aspects of young children's development and the creation of inclusive learning opportunities for all children, including children at risk. The concept of developmentally appropriate practice and its application across different developmental levels and early childhood classrooms will be introduced and connected with discussion in EDHD220 and EDSP211. Students examine issues in developing and implementing high quality early childhood education experiences for young children with and without disabilities, including the influence of family, culture, and community, the needs of children at risk (e.g., poverty, immigrant status, English Language Learners), and the role of assessment in early learning.

EDHD 220 Exploring Early Childhood General and Special Education (3) Students who are considering a career in education will consider information about the teaching profession. Students reflect on their personal strengths, identify areas of growth, and examine their predisposition to work with young children with and without disabilities. They will discuss the nature of teaching, the moral and philosophic underpinnings that influenced their decision to enter into the teaching professions, as well as the roles and responsibilities of teachers and the characteristics and qualities for effective teachers (teaching styles and teacher's primary role in the classroom).

EDHD 221 Aggression and Violence in Everyday Life: Can Violence Be Prevented? (3) History of aggression and violence in the world and in the United States. Examines the extent to which various forms are prevalent today and scientifically supported prevention strategies. Methods of studying aggression are reviewed, as are theories and methods of preventing aggression and violence.

EDHD 222 Literature in the Early Childhood Classroom (3) Restriction: Must be in Early Childhood Education program. Introduces students to the realm of literature for young children. Through studying, reading, listening to and using books and poems, students develop an understanding about qualities in literature that are meaningful to children.

EDHD 230 Human Development and Societal Institutions (3) Development of the individual in the context of relationships with the formal and informal institutions of society. An examination of various aspects of development from the broad perspective of the social sciences.

EDHD 231 Inside 21st Century Creativity: How Creative Ideas, Concepts, and Products are Generated (3) Mechanisms of the creative mind. Psychological, social, sociological, developmental, cultural, educational, genetic and neural based roots of creativity.

EDHD 306 Research Methods in Human Development (3) Addresses the scientific concepts and principles central to the study of human behavior and development. Students will learn about basic research methods in studying human behavior in developmental context and will participate in experiential activities, such as conducting observations and collecting self-report data. Major themes: goals of developmental research, fundamental research designs, types of measurement, elements of good scientific writing, and ethical issues in the study of human development.

EDHD 310 Your Brain on Education: The Neuroscience of Learning and Development (3) Prerequisite: PSYC100. Investigation linking research in the brain science of learning and development, including the neural basis of academic skills, to achievement, disability, and broader applications to classroom learning. This course will focus on areas of education including language (spoken and written), conceptual change, numerical/quantitative processing, and social cognition as well as burgeoning areas of neuroscientific research in general cognitive processes such as attention, memory, and executive processing. These topics will be discussed with respect to typical and atypical development with some focus on developmental disabilities including autism, specific language impairment, reading and math impairment, and attention deficit disorders among others. This course will focus on both the theoretical perspectives and pragmatic issues of how evidence regarding brain development can or may be translated into useful or misleading information for educators, professionals, and parents/guardians of our children.

EDHD 313 Creative Experiences for Young Children (3) Restriction: Must be in Early Childhood Education program. Credit only granted for: EDHD313 or EDCI313. Formerly: EDCI313. Provides preservice teachers with an understanding of the current research on the development of creativity and integration of the arts into an early childhood classroom.

EDHD 314 Reading in the Early Childhood Classroom (3) Prerequisite: EDHD210, EDHD220, and EDSP211. Corequisite: EDHD425; and corequisite: EDHD419 or EDSP420. Restriction: Must be enrolled in Professional Early Childhood/Early Childhood Special Education Program; and minimum cumulative GPA of 2.75. Early childhood students introduced to current research/methods on teaching language arts. Focus on development of linguistic and cognitive processes in emergent literacy and beginning reading and writing. Application to models for the instruction and assessment of reading/writing in preschool-aged children. Also includes material on classroom-based interventions for young children at risk of reading failure due to learning difficulties. Includes Field Experiences.

EDHD 315 Reading in Early Childhood Classroom: Instruction and Materials Part II (3) Prerequisite: EDHD314. Restriction: Must be in Early Childhood Education program. This course builds on the theories and teaching strategies of EDHD314. Students will focus on teaching of reading and writing to primary grade students.

EDHD 319 Selected Topics in Human Development (3) Repeatable to 6 credits if content differs. Selected topics in human development in relation to contemporary culture.

EDHD 320 Human Development Through the Life Span (3) Central concepts related to parameters of human development, individual and social, which arise throughout the life span. Continuity and change within the developing individual.

EDHD 321 The Young Child as Scientist (2) Prerequisite: EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: EDHD323, EDHD322, EDHD315, EDHD435, and EDHD427. Restriction: Must be in Early Childhood Education program; and senior standing or higher. Provides theoretical and practical knowledge for teaching science in early childhood classrooms. Appropriate teaching strategies and materials of instruction are presented for diverse settings. Includes field experience.

EDHD 322 The Young Child as Mathematician (3) Prerequisite: EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP 430, EDSP 433; OR Track 2: Must have completed EDHD415, EDHD 424. Corequisite: EDHD323, EDSP321, EDSP417, EDHD441, EDHD442, EDHD443, and EDHD444. Restriction: Must be in the Professional Early Childhood/Early Childhood Special Education program; and senior standing or higher; and minimum cumulative GPA of 2.75. Provides a theoretical and instructional framework for mathematics instruction in early childhood classrooms. Development of understanding of early childhood mathematics that emphasizes how and in what environment young children learn mathematics. Current thinking about both content and instructional strategies for mathematics curriculum, including identification and review of standards and expectations for learning outcomes for all children. Assessment strategies for evaluating all children will be addressed. Includes Phase 1 Field Experience.

EDHD 323 Children Study their World (3) Prerequisite: EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430, EDSP433; or Track 2: Must have completed EDHD415, EDHD424. Corequisite: EDHD322, EDSP417, EDHD441, EDHD443, EDHD442, EDHD444, and EDSP321. Restriction: Must be in the Professional Early Childhood/Early Childhood Special Education program; and senior standing or higher; and minimum cumulative GPA of 2.75. Provides theoretical and instructional framework for social studies instruction in inclusive early childhood classrooms. Course will reflect current thinking about content and instructional strategies for social studies curriculum; identification and review of standards/expectations for learning outcomes for all children; assessment strategies for evaluating of social studies objectives; use of data driven instruction to support all children; observation of children's understanding of their social world in field placements; opportunities to explore these understandings through interviews with children and the implementation of activities. Includes Phase 1 Field Experience.

EDHD 386 Experiential Learning (3-6) Restriction: Permission of EDUC-Human Development and Quantitative Methodology department; and junior standing or higher.

EDHD 400 Introduction to Gerontology (3) Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-processes that bear on quality of life in later years. Field study of programs, institutions for elderly, individual elders, their families and care providers.

EDHD 401 Promoting Optimal Aging (3) Prerequisite: EDHD320; or EDHD400; or permission of EDUC-Human Development and Quantitative Methodology department. Credit only granted for: EDHD401 or EDHD641. Theoretical, research, and applied issues related to optimal aging from psychological, biological, and societal perspectives. Group or individual projects involving direct field experiences.

EDHD 402 Social Development (3) Recommended: EDHD411. Social Development. Critical concepts and ideas of the study of child and adolescent social development. Focus on changes in interpersonal relationships, emotions, achievement-related behavior and competence, and functioning within the broader social context.

EDHD 411 Child Growth and Development (3) Theoretical approaches to and empirical studies of physical, psychological and social development from conception to puberty. Implications for home, school and community.

EDHD 412 Infant Development (3) Infant development across domains, including perceptual, motor, cognitive, language, social and emotional functioning from pre-natal through third year of life.

EDHD 413 Adolescent Development (3) Adolescent development, including special problems encountered in contemporary culture. Observational component and individual case study.

EDHD 414 Development of the Scientific Mind Across the Lifespan (3) Recommended: EDHD320. Study of the educational, cognitive, social, and cultural factors that underlie the development of the scientific mind across the lifespan.

EDHD 415 Promoting the Social-Emotional Competence of Young Children in Inclusive Classrooms (3) Prerequisite: EDHD314 and EDHD425; and (EDHD419 or EDSP420). Corequisite: EDSP423, EDSP424, and EDHD431. Restriction: Must be in the Professional Early Childhood/Early Childhood Special Education program; and junior standing or higher; and minimum cumulative GPA of 2.75. Teachers must have knowledge and skill regarding how to appropriately manage the classroom so that all children, those with and without disabilities, will be able to learn from their school experiences. Classroom management extends beyond responding to student misbehavior to include a comprehensive approach to addressing the social/emotional competence of typically and atypically developing children. The goal of this course is to prepare early childhood teachers who are able to sensitively, responsively, and effectively manage a classroom of young students who are typically developing and those who have disabilities. Includes Field Experience.

EDHD 420 Cognitive Development and Learning (3) Prerequisite: EDHD320, EDHD411, PSYC341, or PSYC355; or permission of EDUC-Human Development and Quantitative Methodology department. Current developmental theories of cognitive processes such as language, memory, and intelligence and how differences in cognitive level (infancy through adolescence) mediate learning of educational subject matters.

EDHD 421 Peer Relations (3) Recommended: EDHD411. Historical and theoretical underpinnings to contemporary research on peer interactions, relationships, and groups. Focus on (1) inter-dependencies of individual characteristics, social behaviors, social relationships; (2) relations between familial factors and extra-familial peer interactions and relationships; (3) normal and abnormal peer relationships; and (4) cross cultural universals and differences.

EDHD 424 Culture, School & Community: Contexts for Learning (PreK-3rd) (3) Prerequisite: EDHD425 and EDHD314; and (EDHD419 or EDSP420). Corequisite: EDSP315, EDHD431, EDHD415, and EDSP423. Restriction: Must be in the Professional Early Childhood/Early Childhood Special Education program; and junior standing or higher; and minimum cumulative GPA of 2.75. Explores the development of the young child (with and without disabilities, as well as those at environmental risk) in the context of the family and community, with emphasis on the impact of state, federal and school system policy on the child's world. Course will consider issues within the family, and the wider socio-cultural

ecology that relate to the child's ability to develop and learn. In addition, students will develop strategies for respectful and culturally responses approaches to actively engage families in their children's development and learning. Includes Field Experience.

EDHD 425 Language Development and Reading Acquisition (3) This course focuses on young children's language development and the relationship between language and reading acquisition. Students will learn: concepts central to language development; language achievements at different ages; concepts of emergent literacy; models of reading acquisition and skilled reading.

EDHD 426 Cognition and Motivation in Reading: Reading in Content Areas I (3) Students preparing for secondary teaching will learn the cognitive and motivational aspects of reading and learning from text in subjects of literature, science, history and mathematics. Different structured approaches to using text for content learning are presented. Classroom contexts that enable students to engage productively with diverse texts and internet resources are identified.

EDHD 427 Constructing and Integrating the Early Childhood Curriculum (3) Prerequisite: EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: EDHD323, EDHD322, EDHD315, EDHD321, and EDHD435. Restriction: Must be in Early Childhood Education program; and senior standing. Explores the world from the child's perspective and constructs curriculum based on cognition, learning, and children's experiences. The integrated curriculum is the overarching framework for this course. Includes field experience.

EDHD 430 Adolescent Violence (3) Prerequisite: PSYC100; or permission of EDUC-Human Development and Quantitative Methodology department. Examines the roots of violence among adolescents and the extent to which this constitutes a problem in various settings. Research studies on its origins, prevention and intervention and implications for social policy are examined.

EDHD 431 Child Development and Learning, Three to Eight Years (3) Prerequisite: Minimum grade of C- in EDHD314 and EDHD425; and 1 course with a minimum grade of C- from (EDHD419, EDSP420). Corequisite: EDSP423 and EDSP315; and TRACK I: Must be concurrently enrolled in EDSP430, EDSP433; or TRACK 2: Must be concurrently enrolled in EDHD415, EDHD424. Provides a basic understanding of child development theory and research, as well as specific knowledge about the development of children during the early and middle childhood "stages," specifically from ages 3 years to 8 years. A major emphasis will be the application of theory and research from the field of educational psychology to an understanding of how young children learn and achieve academically. Because the course will address the developmental and academic functioning of children with and without disabilities, a particular focus will be on individualization.

EDHD 432 Internship in EC/ECSE (12) Prerequisite: EDHD323, EDHD322, EDSP417, EDHD441, EDHD442, EDHD443, EDHD444, and EDSP321. Corequisite: EDHD437. Restriction: Must be in Early Childhood and Early Childhood Special Education program; and senior standing or higher. Interns spend five days per week in the classroom/home-based setting (under the mentorship of a certified teacher) where they gradually assume full responsibility for the planning, delivery and assessment of instruction or an intervention. Track I students will have an Infant/Toddler placement with special educator, Track II students will be in a Pre-K/K or Grade 1,2,3 classroom with general or special educator (must be opposite grade level and mentor from Phase I/fall of the senior year).

EDHD 434 Child Development, Birth to Three Years (3) Prerequisite: EDHD210, EDHD220, and EDSP211. Corequisite: EDHD314 and EDHD425. Also offered as: EDSP420. Credit only granted for: EDHD419A or EDHD434. Formerly: EDHD419A. Designed to provide students with an understanding

of child development theory and research, as well as knowledge about typical and atypical development of children from birth to three years of age. The course emphasizes learning for children with and without disabilities, and for children who are at risk due to poverty and other environmental factors. The course will introduce how children develop and the challenges they face within the domains of physical, cognitive, language, social, and emotional development, with particular attention paid to the impact of risk factors on development. Students will become familiar with delays and differences in development that may occur as the result of disability. Finally, students will learn the effects of cultural and linguistic differences on growth and development. Information about theory and research in child development for children with and without disabilities will be enhanced through a series of observational experiences, which will build upon concepts addressed during class. Includes field experiences.

EDHD 435 Effective Components of the Early Childhood Classroom (3) Prerequisite: EDHD419, EDHD314, EDHD313, EDHD424, and EDSP470. Corequisite: EDHD323, EDHD322, EDHD315, EDHD321, and EDHD427. Restriction: Must be in Early Childhood Education program; and senior standing or higher. Explores three topics integral to effective, child-centered early childhood classrooms: assessment, classroom management and parent involvement. Includes field experience.

EDHD 436 Cognition and Motivation in Reading: Reading Acquisition for Middle School Students (3) Cognitive and motivational processes of reading and learning from texts across subjects. Structured approaches to using text for content learning based on approaches to knowledge, motivation, and strategies. Classroom contexts that enable middle school students to engage with diverse texts and Internet resources are provided.

EDHD 437 EC/ECSE Teachers as Researchers and Reflective Practitioners (3) Prerequisite: Minimum grade of C- in EDHD322, EDHD323, EDSP321, EDSP417, EDHD441, EDHD442, EDHD443, and EDHD444. Corequisite: EDHD432. Students use action research to improve instructional delivery or familial interactions in an effort to enhance the overall educational experiences/outcomes of children in classrooms or home-based contexts. Students will design and implement an action research project in an effort to meet a goal articulated in an applicable Individualized Education Plan (IEP) or Individualized Family Service Plan (IFSP) or School Improvement Plan (SIP) as the basis of their project.

EDHD 440 Adult Development (3) Prerequisite: EDHD320; or permission of EDUC-Human Development and Quantitative Methodology department. Recommended: EDHD413. Major conceptual approaches to the study of adult development including physical, cognitive, social, emotional and self processes that take place within individuals as they progress from emerging adulthood through middle age.

EDHD 441 Data Driven Decision Making in EC/ECSE (1) Prerequisite: Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and TRACK I: Must have completed EDSP430 and EDSP433 or TRACK 2: Must have completed EDHD415 and EDHD424. Corequisite: EDHD322, EDHD323, EDSP321, EDSP417, EDHD442, EDHD443, and EDHD444. Students will be exposed to formative (e.g., classroom based, ongoing) and summative (e.g., standardized testing) assessments. Students will collect and analyze formative assessment data from their internship classrooms as the bases of planning and delivering instruction to meet the diverse needs of all learners. They will also analyze standardized assessment data to gain an understanding of measures used to determined cross-school and cross-teacher effectiveness. Includes Phase I field experience.

EDHD 442 Interventions for Children with Behavioral Challenges (1) Prerequisite: Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and TRACK I: Must have completed EDSP430 and EDSP 433; or TRACK 2: Must have completed EDHD415 and EDHD 424. Corequisite: EDSP321, EDSP417,

EDHD322, EDHD323, EDHD441, EDHD443, and EDHD444. Students will expand knowledge of and develop skills to address challenging behaviors in inclusive early childhood classrooms. Students examine the causes underlying challenging behaviors during the early childhood years, and identify appropriate resources and support services for working with families to develop a unified approach when responding to behavioral challenges. Includes Phase I field experience.

EDHD 443 Interventions for Children with Social and Communication Challenges (1) Prerequisite: Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and TRACK I: Must have completed EDSP430 and EDSP 433; or TRACK 2: Must have completed EDHD415 and EDHD 424. Corequisite: EDHD322, EDSP321, EDSP417, EDHD323, EDHD441, EDHD442, and EDHD444. Students will learn about the characteristics of children with autism spectrum disorder, pervasive developmental disorder, social communication disorder, and other related challenges and will be equipped to meet the needs of this group of children in the early childhood classroom. The utilization of Universal Design for Learning (UDL), Response to Intervention (RTI) and other early childhood special education approaches, as they apply to this specific group of children, will be addressed. Interventions designed to improve the functioning of children with autism spectrum disorders and related disorders will be reviewed. Includes Phase I field experience.

EDHD 444 Action Research in EC/ECSE (1) Prerequisite: Minimum grade of C- in EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430 and EDSP433; OR Track 2: Must have completed EDHD415 and EDHD424. Corequisite: EDHD322, EDHD323, EDHD441, EDHD442, EDHD443, EDSP417, and EDSP321. Students will become familiar with the EC/ECSE research process, literature and how teachers use action research to improve pedagogy and the experiences of children in classrooms or home-based contexts. Students will utilize this knowledge, as well as either a goal in an Individualized Education Plan (IEP) or Individualized Family Service Plan (IFSP) or School Improvement Plan (SIP), to develop an action research study commenced during the following semester. Includes Phase I field experience.

EDHD 445 Guidance of Young Children (3) Prerequisite: PSYC100; or permission of EDUC-Human Development and Quantitative Methodology department. Practical aspects for helping and working with children, drawing on research, clinical studies, and observation. Implications for day care and other public issues.

EDHD 460 Educational Psychology (3) Prerequisite: PSYC100; or permission of EDUC-Human Development and Quantitative Methodology department. Application of psychology to learning processes and theories. Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings.

EDHD 489 Field Experiences in Education (1-4) Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHD 498 Special Problems in Education (1-3) Prerequisite: Available only to students who have definite plans for individual study of approved problems. Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Available only to students who have definite plans for individual study of approved problems.

EDHD 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College

of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDHI -- Education Leadership, Higher Ed and International Ed

EDHI 288 Special Problems in Education (1-6) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; and available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching. Formerly: EDPL288. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

EDHI 338 Teaching and Learning about Cultural Diversity through Intergroup Dialogue (1-3) Prerequisite: Completion of on-line registration form. Repeatable to 6 credits if content differs. Formerly: EDPL288. Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on difficult topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.

EDHI 488 Special Topics in Education Policy and Administration (1-3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Repeatable to 6 credits. Formerly: EDPL488. Special and intensive treatment of current topics and issues in education policy and administration.

EDHI 489 Field Experiences in Education (1-4) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Formerly: EDPL489. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHI 498 Special Problems in Education (1-3) Prerequisite: Available only to students who have definite plans for individual study of approved problems. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Formerly: EDPL498. Available only to students who have definite plans for individual study of approved problems.

EDHI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. Formerly: EDPA499. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.

EDMS -- Measurement, Statistics, and Evaluation

EDMS 410 Classroom Assessment (3) Restriction: Junior standing or higher. Developing and using classroom assessments, including tests, performance assessments, rating scales, portfolios, observations

and oral interactions; basic psychometric statistics; standard setting; grading; communicating assessment information; testing ethics; locating and evaluating measures; program evaluation and classroom research; assessments used for educational policy decisions.

EDMS 451 Introduction to Educational Statistics (3) Restriction: Sophomore standing or higher. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses tests; t-test; one-way analysis of variance; analysis of contingency tables.

EDMS 489 Field Experiences in Measurement and Statistics (1-4) Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDMS 498 Special Problems in Measurement and Statistics (1-3) Prerequisite: Available only to education majors who have formal plans for individual study of approved problems. Restriction: Permission of EDUC-Human Development and Quantitative Methodology department. Repeatable to 6 credits. Available only to education majors who have formal plans for individual study of approved problems.

EDPS -- Education Policy Studies

EDPS 210 Historical and Philosophical Perspectives on Education (3) Credit only granted for: EDPL210 or EDPS210. Formerly: EDPL210. An examination of illustrative historical and philosophical examples of the interplay of ideas and events in the shaping of educational aims and practices from ancient cultures to modern technological societies.

EDPS 288 Special Problems in Education (1-6) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL288. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

EDPS 301 Foundations of Education (3) Credit only granted for: EDPL301 or EDPS301. Formerly: EDPL301. Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.

EDPS 310 Foundations of Education (3) Credit only granted for: EDPL301 or EDPS301. Formerly: EDPL301. Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.

EDPS 401 Educational Policy, and Social Change (3) Credit only granted for: EDPL401 or EDPS401. Formerly: EDPL401. An examination of education policy in relation to the social environment and change. Contemporary education and social issues are examined, including technology as a complex force which influences social change. This is a Social Foundations course.

EDPS 488 Special Topics in Education Policy and Administration (1-3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL488. Special and intensive treatment of current topics and issues in education policy and administration.

EDPS 489 Field Experiences in Education (1-4) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL489. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDPS 498 Special Problems in Education (1-3) Restriction: Permission of EDUC-Teaching, Learning, Policy and Leadership department. Formerly: EDPL498. Available only to students who have definite plans for individual study of approved problems.

EDPS 499 Workshops, Clinics, and Institutes (1-6) Formerly: EDPL499. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.

EDSP -- Education, Special

EDSP 210 Introduction to Special Education (3) Restriction: Sophomore standing or lower. Credit only granted for: EDSP210 or EDSP470. Characteristics and needs of individuals receiving special education and related services. Current issues and practices in special education.

EDSP 211 Introduction to Special Education (3) Restriction: Sophomore standing or lower; and permission of EDUC-Counseling, Higher Education and Special Education department. Credit only granted for: EDSP210 or EDSP470. An introduction to the field of special education. Students examine historical foundations, including legislation; review components necessary for effective service delivery; and develop an understanding of the role of collaboration and consultation with parents, school personnel and other professionals. In addition, students are introduced to the nature and characteristics of various disabilities and review current issues in the field including overrepresentation of minority students in special education, inclusion, and federal and state assessment mandates. Current topics are addressed including evidence-based practices, universal design for learning, and individualization and differentiation of instruction..

EDSP 220 Disability in Community: Access, Accommodation, and Adaptation (3) Examines the concept of disability in a variety of community settings. Drawing on classic and contemporary readings in psychology, sociology and special education, the course will couple conceptual and historical understanding of disability with first-hand service-learning experiences in the community. Students will develop a plan in several phases that encompasses principles of Universal Design for Living/Learning (UDL) to study and participate in community-based activities.

EDSP 288 Special Topics in Teacher Education (1-3) Restriction: Must be in a major in EDUC-College of Education; or permission of EDUC-Counseling, Higher Education and Special Education department. Repeatable to 6 credits if content differs.

EDSP 298 Special Problems in Teacher Education (1-6) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; and available only to freshmen and sophomore

education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Credit according to extent of work.

EDSP 315 Inclusive Instruction: Reading Methods II (3) Prerequisite: EDHD314 and EDHD425; and (EDHD419 or EDSP420). Corequisite: EDSP423 and EDHD431; and track 1: Must be concurrently enrolled in EDSP430 and EDSP433; OR Track 2: Must be concurrently enrolled in EDHD415 and EDHD424. Focus on current research and methods of teaching reading in the primary grades. Examination of development of a balanced literacy program of children of all reading levels in inclusive early childhood classrooms. Students will learn to select and use a variety of evidence-based reading strategies and assessment tools for reading and writing instruction. Includes field experiences.

EDSP 321 The Young Child As Scientist (3) Prerequisite: EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430 and EDSP433; OR Track 2: Must have completed EDHD415 and EDHD424. Corequisite: EDHD322, EDHD323, EDSP417, EDHD441, EDHD442, EDHD443, and EDHD444. A theoretical and pedagogical framework for evidence-based inclusive science instruction in inclusive early childhood classrooms. Examination of principles of inquiry-based science learning and develop strategies for helping children acquire fundamental problem-solving skills that may be applied to understanding a wide array of science content. Assessment strategies for evaluating the achievement of science objectives, and the achievement for all children will be addressed. Includes field experience.

EDSP 376 Fundamentals of Sign Language (3) Receptive and expressive skills in American Sign Language. Examination of the causes of deafness, characteristics of deaf education, and aspects of the culture of the deaf community.

EDSP 386 Experiential Learning (3-6) Prerequisite: Learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

EDSP 400 Instruction of Students with Severe Disabilities I (3) Restriction: Must be in Special Education program. Also offered as: EDSP602. Credit only granted for: EDSP400 or EDSP602. Functional assessment procedures and instructional methods for students with severe disabilities.

EDSP 402 Field Placement: Severe Disabilities I (2-5) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Practicum experience in settings serving students with severe disabilities.

EDSP 403 Instruction of Students with Physical Disabilities (3) Also offered as: EDSP603. Credit only granted for: EDSP403 or EDSP603. Assessment, curriculum, and instruction for students with physical disabilities. Focus on etiology, environmental and learning adaptations, and assistive technology.

EDSP 404 Education of Students with Autism Spectrum Disorders (3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Also offered as: EDSP604. Credit only granted for: EDSP404 or EDSP604. Characteristics, needs, assessment, and educational methods for students with autism spectrum disorders.

EDSP 410 Instruction of Students with Severe Disabilities II (3) Restriction: Must be in Special Education program. Also offered as: EDSP614. Credit only granted for: EDSP410 or EDSP614.

Functional assessment, curriculum, and instruction related to academic and community functioning skills for students with severe disabilities.

EDSP 413 Behavior and Classroom Management in Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP613. Credit only granted for: EDSP413, or EDSP613. Use of applied behavior analysis for assessment of behavior and learning environments. Design of behavior and classroom management of students in special education.

EDSP 415 Assessment in Special Education (3) Recommended: STAT100; or SOCY201. Restriction: Must be in Special Education program. Also offered as: EDSP615. Credit only granted for: EDSP415, or EDSP615. Knowledge and skills for understanding assessment process and interpretation of assessment data. Emphasis on psychometric aspects of assessment related to screening, eligibility, and program planning.

EDSP 416 Reading and Writing Instruction in Special Education I (3) Restriction: Must be in Special Education program. Also offered as: EDSP616. Credit only granted for: EDSP416 or EDSP616. Assessment and instruction of reading and writing skills for students in special education.

EDSP 417 Reading Diagnosis and Assessment (3) Prerequisite: EDSP423, EDHD431, and EDSP315; and track 1: Must have completed EDSP430 and EDSP433; OR Track 2: Must have completed EDHD415 and EDHD424. Corequisite: EDHD322, EDHD323, EDSP321, EDHD441, EDHD442, EDHD443, and EDHD444. Reading Diagnosis and Assessment prepares teacher candidates to assess children in general and special early childhood educations settings in the areas of reading and writing in order to plan for instruction. The course will focus on diagnostic, screening, progress monitoring, and outcome assessments in early and beginning literacy. The course is designed to provide participants with the knowledge and skills necessary to collect and use a wide range of assessment data in general education and special education settings. Includes field experience.

EDSP 420 Child Development, Birth to Three Years (3) Prerequisite: EDHD210 and EDHD220. Corequisite: EDHD425 and EDHD314. Restriction: Must be in Special Education program. Child development theory and research, as well as knowledge about typical and atypical development of children from birth to three years of age. The course emphasizes learning for children with and without disabilities, and for children who are at risk due to poverty and other environmental factors. The course will introduce how children develop and the challenges they face within the domains of physical, cognitive, language, social, and emotional development, with particular attention paid to the impact of risk factors on development. Students will become familiar with delays and differences in development that may occur as the result of disability. Finally, students will learn the effects of cultural and linguistic differences on growth and development. Information about theory and research in child development for children with and without disabilities will be enhanced through a series of observational experiences, which will build upon concepts addressed during class. Includes field experiences.

EDSP 421 Field Placement in Special Education: Early Childhood I (2-4) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Field experience I in early childhood special education.

EDSP 422 Curriculum and Instruction: Early Childhood Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP627. Credit only granted for: EDSP422 or EDSP627. Curriculum and instruction for young children with mild and moderate disabilities, preschool through primary grades.

EDSP 423 Assessment in Early Childhood Special Education (3) Restriction: Must be in Special Education program. Credit only granted for: EDSP423 or EDSP624. Assessment procedures for infants and young children with disabilities, birth through grade 3.

EDSP 424 Field Placement in Special Education: Early Childhood II (2-4) Restriction: Must be in Special Education program. Field experience in early childhood special education.

EDSP 430 Early Intervention: Early Childhood Special Education (3) Restriction: Must be in Special Education program. Credit only granted for: EDSP430 or EDSP631. Intervention with infants and young children with disabilities. Focus on moderate and severe disabilities.

EDSP 433 Families and Culture in Early Intervention (Birth-5) (3) Prerequisite: EDHD314 and EDHD425; and (EDHD419 or EDSP420). Corequisite: EDSP430, EDSP315, and EDHD431. Provides students with the skills and information they need to work effectively with families of young children (birth to age 5) who have or are at risk for disabilities in early childhood or early intervention programs. Students will review current local, state and federal policies establishing the rights of families of infants and young children with disabilities to participate in decision making for their child. We will discuss relevant theoretical and research literature as well as the cultural and contextual issues involved in working with families of very young children. Includes field experiences.

EDSP 434 Field Placement in Special Education: Secondary Middle I (2-4) Restriction: Must be in Special Education program. Field experience in secondary middle special education.

EDSP 435 Field Placement in Special Education: Secondary Middle II (2-4) Restriction: Must be in Special Education program. Field experience in secondary middle special education.

EDSP 443 Language and Literacy Acquisition in Children with Disabilities (3) Restriction: Must be in Special Education program. Additional information: This course is the first of four reading courses required by the Maryland State Department of Education for teacher certification in Special Education. Language and literacy acquisition and characteristics of typical and atypical language development in supporting students with reading and writing disabilities.

EDSP 450 Inclusive Practices in the Schools (3) Also offered as: EDSP606. Credit only granted for: EDSP450 or EDSP606. Educational practices regarding inclusive education in the schools for students with and without disabilities.

EDSP 451 Curriculum and Instruction: Elementary/Middle Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP652. Credit only granted for: EDSP451 or EDSP652. Methods for instruction of students with disabilities in the general education curriculum. Collaboration with other professionals is included.

EDSP 452 Internship I: Elementary/Middle Special Education (2-4) Restriction: Must be in Special Education program. Also offered as: EDSP692. Credit only granted for: EDSP452 or EDSP692. Field experience in elementary/middle school special education.

EDSP 453 Methods and Models of Instruction: Elementary Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP653. Credit only granted for: EDSP453 or EDSP653. Focus on models and methods of instruction responsive to the cognitive, linguistic, and cultural characteristics of elementary students in special education.

EDSP 454 Field Placement in Special Education: Elementary II (2-4) Restriction: Must be in Special Education program. Field experience in elementary special education.

EDSP 455 Assessment in Elementary Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP654. Credit only granted for: EDSP455 or EDSP654. Focus on selection, administration, and interpretation of assessment tools and results for designing instruction and evaluating progress of elementary students in special education.

EDSP 466 Issues and Models of Instruction: Middle/Secondary Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP664. Credit only granted for: EDSP466 or EDSP664. Issues, legislation, and service models in middle/secondary special education. Emphasis on career and vocational education, self-determination, and transition.

EDSP 470 Introduction to Special Education (3) Restriction: Must not have completed EDSP210. Credit only granted for: EDSP210 or EDSP470. Designed to give an understanding of the needs of all types of exceptional children.

EDSP 474 Assessment in Middle/Secondary Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP674. Credit only granted for: EDSP474 or EDSP674. Cognitive, vocational, and social assessment for students with disabilities. Emphasis on interpretation of assessment results and case management practices.

EDSP 476 Communicating with Sign Language (3) Prerequisite: EDSP376. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Intermediate level receptive/expressive skills in American Sign Language. Aspects of the culture, history, and research perspectives of the deaf community.

EDSP 477 Curriculum, Assessment, and Instruction: Middle/Secondary Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP677. Credit only granted for: EDSP477 or EDSP677. Methods and assessment practices for effective instruction in middle and secondary content areas for students in special education.

EDSP 481 Cultural Diversity and Disability (3) Restriction: Must be in Special Education program. Also offered as: EDSP681. Credit only granted for: EDSP481, EDSP499C, EDSP678C, or EDSP681. Formerly: EDSP499C. A study of diversity issues within special education, with attention to uses of race, culture, and disability as they pertain to teaching, learning, and social justice.

EDSP 482 Literacy Approaches for At-Risk Adolescents (3) Prerequisite: Must have completed or be concurrently enrolled in EDHD426. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Also offered as: EDSP682. Credit only granted for: EDSP482 or EDSP682. Provides approaches to teaching reading in the content areas for secondary students with disabilities.

EDSP 484 Reading and Writing Instruction in Special Education II (3) Prerequisite: EDSP416. Restriction: Must be in Special Education program. Also offered as: EDSP684. Credit only granted for: EDSP484 or EDSP684. Focus on the development of reading and writing programs for students in special education. Builds on foundations established in EDSP416.

EDSP 485 Assessment and Instruction in Mathematics in Special Education (3) Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education

(Doctoral); Special Education (Master's)). Also offered as: EDSP683. Credit only granted for: EDSP485 or EDSP683. Instructional methods and assessment in mathematics in special education.

EDSP 486 Promoting Prosocial Behavior in Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP686. Credit only granted for: EDSP486 or EDSP686. Focus on social development among students with and without disabilities, the relationship between pedagogy and student behavior, and classroom, school, and community approaches for developing prosocial behavior.

EDSP 487 Family Partnerships in Special Education (3) Restriction: Must be in Special Education program. Also offered as: EDSP687. Credit only granted for: EDSP487 or EDSP687. Strategies for communicating and working with families of students with disabilities.

EDSP 488 Selected Topics in Teacher Education (1-3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department; or must be in a major in EDUC-College of Education. Repeatable to 6 credits if content differs.

EDSP 489 Field Experiences in Special Education (1-4) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDSP 490 Teacher Candidate Research Seminar in Special Education (3) Restriction: Must be in Special Education program. Study of current issues and research concerning the education of students in special education.

EDSP 494 Internship: Early Childhood Special Education (6-12) Restriction: Must be in Special Education program. Student teaching, full-time for twelve weeks, with infants or preschool children with disabilities.

EDSP 495 Internship II: Elementary/Middle Special Education (6-12) Corequisite: EDSP490. Restriction: Must be in Special Education program; or must be in one of the following programs (Special Education (Doctoral); Special Education (Master's)). Also offered as: EDSP695. Credit only granted for: EDSP 495 or EDSP 695. Student teaching, full-time for 15 weeks, with elementary or middle school students with disabilities.

EDSP 496 Internship: Middle/Secondary Special Education (6-12) Restriction: Must be in Special Education program. Student teaching, full-time for twelve weeks, with middle or high school age students with disabilities.

EDSP 498 Special Problems in Special Education (1-6) Prerequisite: Available only to education majors who have definite plans for individual study of approved problems. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Available only to education majors who have definite plans for individual study of approved problems. Credit according to extent of work.

EDSP 499 Workshops, Clinics, and Institutes in Special Education (1-6) Repeatable to 6 credits if content differs. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the special education department (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing. Laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDUC -- Education

EDUC 275 Students, Learning and Technology (3) Restriction: Permission of EDUC-College of Education. Explore skills essential to college success: technology fluency and applications, team building, collaboration tools, problem based critical thinking, through MicroWorlds and RoboLab. Investigate and visit professions that interconnect the fields of education and technology.

EDUC 386 Experiential Learning (3-6) Restriction: Permission of EDUC-College of Education; and junior standing or higher.

EDUC 388 Special Topics in Education (1-3) Restriction: Permission of EDUC-College of Education. Repeatable to 6 credits if content differs.

EDUC 476 Assessment and Design Strategies for Improving Student Learning: Utilizing Data with Technology Tool (3) Restriction: Permission of EDUC-College of Education. Explore systemic improvement strategies to curriculum planning, assessment, and instruction through utilizing data and data analysis via technology tools. It is designed to assist educators in identifying and using data that are most effective in assisting improvement of student achievement and system efficacy.

EDUC 477 Assistive Technology for the Classroom Setting (3) Restriction: Permission of EDUC-College of Education; and junior standing or higher. Designed to be an introductory survey course for educators in the application of assistive technology in the general classroom setting. Students will be introduced to various assistive technologies and strategies.

EDUC 478 Using Information Technology in Schools (1-3) Restriction: Permission of EDUC-College of Education; and junior standing or higher. Repeatable to 6 credits if content differs. Strategies, resources, tools and organizational concepts for using technology to facilitate classroom learning and school administrative functions.

EDUC 498 Selected Topics in Education (1-3) Restriction: Permission of EDUC-College of Education. Repeatable to 9 credits if content differs. Current topics and issues in education.

EDUC 499 Honors Thesis (1-6) Prerequisite: Admission to College Honors Program. Restriction: Permission of EDUC-College of Education. Individual thesis work under supervision of faculty advisors; includes periodic seminar meetings with other honors students engaged in thesis work.

ENAE -- Engineering, Aerospace

ENAE 100 The Aerospace Engineering Profession (1) Recommended: ENES100 and MATH140. Overview of salient aspects of professional practice of Aerospace Engineering. Introduction to the range of technical expertise needed to succeed in the profession and the objectives of the various parts of the Aerospace Engineering program at UMCP in supporting students' efforts in gaining the required knowledge and skills. Familiarization with departmental faculty and their areas of research, creation of links with other students, professional society student chapters, and available resources. Discussion of ethical issues, business requirements, and their interactions with technical developments.

ENAE 200 Aerospace Engineering Profession II (1) Recommended: ENAE100. Restriction: Must be in Engineering: Aerospace program; and permission of ENGR-Aerospace Engineering department. Overview of the engineering profession as it pertains to the role of the engineer in society, professional

practice and ethical standards, career development, opportunities and need for lifelong learning, importance of safety and standards, effective written, visual, and oral communications, and the impact of the engineering profession on global issues.

ENAE 202 Aerospace Computing (3) Corequisite: MATH140. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Introduction to computational tools for the solution of engineering problems. C++ & MATLAB programming including branching and loops, functions, file handling, arrays, and data structures. Students will be introduced to object-oriented programming, basic computing, algorithms, and principles of software engineering.

ENAE 283 Introduction to Aerospace Systems (3) Prerequisite: PHYS161, MATH141, and ENES102. Corequisite: PHYS261 and PHYS260. Restriction: Must be in Engineering: Aerospace program. Credit only granted for: (ENAE281 and ENAE282) or ENAE283. Formerly: ENAE281 and ENAE282. Introduction to airplanes and space vehicles as aerospace systems. Fundamentals that describe these systems. Elements of aerodynamics, airfoils and wings. Airplane performance, stability and control. Aircraft and rocket propulsion. Fundamentals of orbital motion. Aspects of vehicle conceptual design.

ENAE 301 Dynamics of Aerospace Systems (3) Prerequisite: PHYS271, MATH461, PHYS270, MATH246, ENAE283, ENAE202, ENES102, and MATH241. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Kinematics and dynamics of three dimensional motion of point masses and rigid bodies with introduction to more general systems. Primary emphasis on Newtonian methods. Practice in numerical solutions and computer animation of equations of motion using MATLAB.

ENAE 311 Aerodynamics I (3) Prerequisite: PHYS271, MATH461, PHYS270, MATH246, ENAE283, ENES220, ENAE202, and MATH241. Corequisite: ENES232. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. And junior standing or higher. Fundamentals of aerodynamics. Elements of compressible flow. Normal and oblique shock waves. Flows through nozzles, diffusers and wind tunnels. Elements of the method of characteristics and finite difference solutions for compressible flows. Aspects of hypersonic flow.

ENAE 324 Aerospace Structures (4) Prerequisite: ENES220. Restriction: Must be in Engineering: Aerospace program. Analysis of torsion, beam bending, plate bending, buckling and their application to aerospace.

ENAE 362 Aerospace Instrumentation and Experimentation (3) Prerequisite: MATH246 and ENAE283. Restriction: Must be in Engineering: Aerospace program; and junior standing or higher. Basic instrumentation electronics including DC electronics, AC electronics, semiconductors, electro-optics and digital electronics. Sensing devices used to carry out experiments in Aerospace Engineering includes metrology, machine tool measurements, bridge circuits, optical devices, and introduction to computer based data acquisition. Topics chosen to support measurements in aerodynamics, flight structures and flight control.

ENAE 380 Flight Software Systems (3) Prerequisite: ENAE283 and ENAE202. Restriction: Must be in Engineering: Aerospace program; and junior standing or higher. Avionics using advanced sensor and computing technologies are at the heart of every modern Aerospace vehicle. Advanced software systems to improve cockpit safety and enable unmanned and deep-space missions. Object-oriented programming and software engineering concepts required to design and build complex flight software systems. Software validation, verification and real-time performance analysis to assess flight software system

reliability and robustness. Human-machine interface design for piloted systems. Automatic onboard data acquisition and decision-making for unmanned air and space vehicles.

ENAE 398 Honors Research Project (1-3) Prerequisite: Must be accepted into Aerospace Honors Program. Restriction: Must be in Engineering: Aerospace program. Repeatable to 3 credits if content differs. Planned sequence of steps in aerospace honors research in which students take three (3) consecutive semesters of this course in partial fulfillment of aerospace engineering honors program requirements. The first semester consists of a series of seminars and meetings with faculty mentors on honors research; two semesters consist of undergraduate honors research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference.

ENAE 403 Aircraft Flight Dynamics (3) Prerequisite: ENAE414 and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Study of motion of aircraft, equations of motion, aerodynamic force representation, longitudinal and lateral motions, response to controls and to atmospheric disturbances, handling qualities criteria and other figures of merit.

ENAE 404 Space Flight Dynamics (3) Prerequisite: ENAE301. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Three-dimensional motion under central fields. Solutions to orbital motion, orbital elements, time elements. Kepler's laws. Orbital maneuvering, rendezvous and station-keeping. Rigid-body attitude dynamics, spacecraft attitude dynamics.

ENAE 414 Aerodynamics II (3) Prerequisite: ENAE311. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. And junior standing or higher. Aerodynamics of inviscid incompressible flows. Aerodynamic forces and moments. Fluid statics/buoyancy force. Vorticity, circulation, the stream function and the velocity potential. Bernoulli's and Laplace's equations. Flows in low speed wind tunnels and airspeed measurement. Potential flows involving sources and sinks, doublets, and vortices. Development of the theory of airfoils and wings.

ENAE 415 Helicopter Theory (3) Prerequisite: ENAE414. Restriction: Must be in Engineering: Aerospace program. Elementary exposition on the theory and practice of aerodynamics applied to helicopters and other rotary wing aircraft.

ENAE 420 Computational Structural Mechanics (3) Prerequisite: ENES220 and MATH241; and must have completed a course in linear algebra. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Introductory of finite element methods for aerospace engineering modeling and analysis; equips students with ability to understand manuals of commercial finite element analysis software.

ENAE 423 Vibration and Aeroelasticity (3) Prerequisite: ENAE324. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Dynamic response of single and multiple degrees of freedom systems, finite element modeling, wing divergence, aileron reversal, wing and panel flutter.

ENAE 425 Mechanics of Composite Structures (3) Prerequisite: MATH246, ENAE324, ENES220, and MATH241. Introduction to structures composed of composite materials and their applications in aerospace. In particular, filamentary composite materials are studied. Material types and fabrication techniques, material properties, micromechanics, anisotropic elasticity, introduction to failure concepts.

ENAE 432 Control of Aerospace Systems (3) Prerequisite: Minimum grade of C- in ENAE301 and ENAE283. Restriction: Junior standing or higher; and must be in Engineering: Aerospace program. An introduction to the feedback control of dynamic systems. Laplace transforms and transfer function techniques; frequency response and Bode diagrams. Stability analysis via root locus and Nyquist techniques. Performance specifications in time and frequency domains, and design of compensation strategies to meet performance goals.

ENAE 441 Space Navigation and Guidance (3) Prerequisite: ENAE404 and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Principles of navigation. Celestial, radio, and inertial navigation schemes. Navigational and guidance requirements for orbital, planetary, and atmospheric entry missions. Fundamentals of communications and information theory. Link budgets, antennas and telemetry systems.

ENAE 455 Aircraft Propulsion and Power (3) Prerequisite: ENES232, ENAE414, and ENAE311. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of piston, turbojet, fanjet, and other variations of airbreathing aircraft power units.

ENAE 457 Space Propulsion and Power (3) Prerequisite: PHYS271, ENES232, PHYS270, and ENAE311. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. And senior standing. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of rocket, ion, and other exoatmospheric power units.

ENAE 464 Aerospace Engineering Laboratory (3) Prerequisite: ENAE324, ENAE362, ENAE311, and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Application of fundamental measuring techniques to measurements in aerospace engineering. Includes experiments in aerodynamics, structures, propulsion, flight dynamics and astrodynamics. Correlation of theory with experimental results.

ENAE 471 Aircraft Flight Testing (3) Prerequisite: ENAE414. Corequisite: ENAE403. Restriction: Must be in Engineering: Aerospace program. Provides basic instruction to aircraft flight testing and demonstrates need for systematic, well-proven technique to allow for accurate airplane performance. Concepts of aerodynamics, airplane performance, and stability and control. Emphasis on single-engine general aviation type aircraft.

ENAE 481 Principles of Aircraft Design (3) Prerequisite: ENAE324, ENAE362, and ENAE432. Corequisite: ENAE414. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Aircraft design principles blending both synthesis and analysis. The iterative nature of the design process. Applied aerodynamics. Elements of aircraft performance calculation and optimization. Design of aircraft including payload, crew and avionics provisions, propulsion selection and sizing, aerodynamic configuration optimization, mass properties, stability and control characteristics, and vehicle subsystems. Individual student projects in aircraft design.

ENAE 482 Aeronautical Systems Design (3) Prerequisite: ENAE455, ENAE423, ENAE403, and ENAE481. Restriction: Must be in Engineering: Aerospace program; and senior standing or higher. Senior capstone design course in the aeronautics track. Introduction of computerized methods for sizing and performance analysis. More comprehensive methods to predict weight, aerodynamics and propulsion system characteristics. Consideration in design disciplines such as vulnerability, maintainability, produceability, etc. Groups of students will complete, brief and report on a major design study to specific requirements.

ENAE 483 Principles of Space Systems Design (3) Prerequisite: ENAE404, ENAE324, ENAE362, and ENAE432. Restriction: Must be in Engineering: Aerospace program; or permission of ENGR-Aerospace Engineering department. Principles of space systems analysis and vehicle design. Launch vehicle performance analysis and optimization. Design of vehicle systems including avionics, power, propulsion, life support, human factors, structures, actuator and mechanisms, and thermal control. Design processes and design synthesis. Individual student projects in vehicle design.

ENAE 484 Space Systems Design (3) Prerequisite: ENAE423, ENAE483, ENAE441, and ENAE457. Restriction: Must be in Engineering: Aerospace program. Senior capstone design course in the space track. Group preliminary design of a space system, including system and subsystem design, configuration control, costing, risk analysis, and programmatic development. Course also emphasizes written and oral engineering communications.

ENAE 488 Topics in Aerospace Engineering (1-4) Prerequisite: Permission of student's advisor required. Restriction: Permission of instructor. Technical elective taken with the permission of the student's advisor and instructor. Lecture and conference courses designed to extend the student's understanding of aerospace engineering. Current topics are emphasized.

ENAE 499 Elective Research (3) Prerequisite: Permission from student's advisor required. Restriction: Senior standing or higher; and must be in Engineering: Aerospace program; and permission of instructor; and permission of ENGR-Aerospace Engineering department. Repeatable to 6 credits if content differs. Undergraduate research project and paper conducted under the direction of an aerospace engineering faculty member to be presented at a conference or competition.

ENCE -- Engineering, Civil

ENCE 100 Introduction to Civil and Environmental Engineering (1) An overview of the department of Civil and Environment Engineering. Students are introduced to the undergraduate curriculum and will be exposed to other undergraduate and graduate students at various points in their program. The course blends panel presentations by seniors and graduate students, faculty and practitioners with a project and book review to be performed by the students.

ENCE 200 Civil Engineering Computation (3) Prerequisite: ENES100, MATH141, and ENES102; and permission of ENGR-Civil & Environmental Engineering department. Credit only granted for: ENCE200 or ENCE202. Formerly: ENCE202. Development of knowledge and skills in managing, analyzing, interpreting, and communicating spatial information. Computer Aided Drawing (CAD) and Geographic Information Systems (GIS) are introduced in the context of civil and environmental engineering applications.

ENCE 201 Engineering Information Processing (3) Prerequisite: ENES220 and MATH241; and permission of ENGR-Civil & Environmental Engineering department. Corequisite: MATH246. Credit only granted for: ENCE201 or ENCE203. Exploration of algorithms for solving problems in several important areas of numerical computing: roots of equations; matrix algebra and the systems of linear equations; function approximation, numerical differentiation and integration; and ordinary differential equations. Issues of solution accuracy, robustness, and efficiency are also considered. Numerical techniques are presented in the context of engineering applications, and example problems are solved using a variety of computer-based tools (primarily MATLAB).

ENCE 215 Engineering for Sustainability (3) Prerequisite: CHEM135; and permission of ENGR-Civil & Environmental Engineering department. Engineers have a key role to play in planning, designing,

building, and ensuring a sustainable future. In this class, a problem-based approach is used to examine fundamentally-based analyses and approaches for engineering as sustainable society, with a focus on sustainable use of energy and materials, sustainable infrastructure solutions, atmospheric sustainability and sustainable water supply, and human population growth and resource consumption and its implications for sustainability.

ENCE 300 Fundamentals of Engineering Materials (3) Prerequisite: ENES220; and permission of ENGR-Civil & Environmental Engineering department. Behavior, physical, mechanical and chemical properties, design and performance of civil engineering materials, including aggregates, cement, concrete, asphalt binders and mixtures, plastics and geosynthetics, timber, metals and alloys. Modified and advanced highway materials (polymer and rubber modified mixtures, high performance concrete, composites, smart materials). Laboratory testing with hands-on experience on aggregates, Portland cement concrete, asphalt mixtures, timber and metals as per SUPERAVE, ACI design methods, and ASTM standards and specifications.

ENCE 302 Probability and Statistics for Civil and Environmental Engineers (3) Prerequisite: MATH246 and ENCE201; and permission of ENGR-Civil & Environmental Engineering department. Statistics is the science of data. Civil Engineers must often make decisions based on incomplete, variable or uncertain information. In addition, modern methods of design and analysis need to account for variability in natural, engineered and human systems. After successful completion of this class, a student should have facility and familiarity with established basic techniques for managing data, modeling variability and uncertainty, communicating about data and decisions, and supporting or defending a decision or judgment based on uncertain or incomplete data.

ENCE 305 Fundamentals of Engineering Fluids (3) Prerequisite: ENES220, PHYS260, and PHYS261; and permission of ENGR-Civil & Environmental Engineering department. Credit only granted for: ENCE305 or ENCE330. Formerly: ENCE330. The theoretical bases for fluid statics and dynamics, including the conservation of mass, energy and momentum. Modeling of hydraulic systems are introduced. Emphasis on pipe flow and open-channel hydraulics, with real-world applications.

ENCE 310 Introduction to Environmental Engineering (3) Prerequisite: PHYS260 and ENCE215; and permission of ENGR-Civil & Environmental Engineering department. Introduction to the physical, chemical and biological systems relating to the quality of water, land and air environments. Fundamental principles will be emphasized, current environmental pollution problems will be examined and methods of pollution abatement discussed.

ENCE 320 Introduction to Project Management (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering or in the Project Management Minor. Credit only granted for: ENCE320 or ENCE325. Learn the fundamentals of project management and the analytical skills for the management side of engineering projects.Topics include economic analysis, project screening and selection, organizational and project structure, scheduling, budgeting, resource management, life cycle costing, and project control.

ENCE 325 Introduction to Construction Project Management (3) Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in a major in ARCH-School of Architecture, Planning, & Preservation; or must be in the Construction Project Management minor. And permission of ENGR-Civil & Environmental Engineering department. Credit only granted for: ENCE 320 or ENCE 325. Learn the basic topics in sourcing, planning, financing, designing, contracting, constructing and operating buildings and other facilities in the built infrastructure. Topics include construction economics, design constructability reviews, construction process planning, contracts and procurement strategies,

project scheduling and resource utilization, site layout planning, project cost and quality controls, temporary structures, environmental sustainability, project handover procedures, facility operation and management, IT-based tools for construction project and resource management.

ENCE 340 Fundamentals of Geotechnical Engineering (3) Prerequisite: ENES220; and permission of ENGR-Civil & Environmental Engineering department. Introductory study of soils in civil engineering. Soil origin, phase relationships and classification schemes. Soil hydraulics: capillary, effective stress, permeability and seepage considerations. Basic stress distribution theories and soil consolidation-settlement analysis. Integration of shear strength evaluation with slope stability analysis. If time permits, topics such as applications in geoenvironmental engineering will be covered.

ENCE 353 Introduction to Structural Analysis (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department; and (MATH246 and ENES220). The basic tools of structural analysis and design. Design loads. Equilibrium of external and internal forces. Shear and moment diagrams in beams and frames. Truss analysis. Influence line diagrams. The slope-deflection method and method of consistent deformation. Matrix stiffness methods for beams, frames and trusses.

ENCE 360 Analysis of Civil Engineering Systems (3) Prerequisite: ENCE201 and MATH140; and permission of ENGR-Civil & Environmental Engineering department. Introduction to systems approach and systems analysis in civil and environmental engineering. Introduction to systems analysis tools that facilitate engineering management decision making including optimization and computer simulation. Introduction to linear and nonlinear mathematical optimization including linear and integer programming, elementary nonlinear programming and dynamic programming.

ENCE 370 Introduction to Transportation Engineering and Planning (3) Prerequisite: ENCE201, PHYS260, and PHYS261; and permission of ENGR-Civil & Environmental Engineering department. Engineering problems of transportation by highways, airways, pipelines, waterways, and railways. Transportation modes and technologies, vehicle dynamics, basic facility design, traffic stream models, capacity analysis, transportation planning, evaluation and choice, and network analysis.

ENCE 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENCE 398 Honors Research Project (1-3)

ENCE 402 Simulation and Design of Experiments for Engineers (3) Prerequisite: ENCE302; and permission of ENGR-Civil & Environmental Engineering department. Review of statistics and hypothesis testing, sample design and design of experiments, generation of discrete and continuous distributions and their applications. Introduction of simulation languages and simulation of discrete and continuous engineering systems. Output analysis, model validation and sensitivity and reliability analysis.

ENCE 411 Environmental Engineering Science (3) Prerequisite: ENCE310; and permission of ENGR-Civil & Environmental Engineering department. Introduces the analytical techniques available to assess performance of engineering processes as they relate to water, soil, and air treatment and quality. The basic principles of environmental management, economics of waste treatment, by-product reutilization, and energy cycles are introduced and discussed. Alternative technologies are introduced and evaluated mostly by assessing their potential to reduce waste, minimize energy use, and promote sustainability. Students' activities include, a weekly lab to provide hands-on experience with environmental quality measurements and treatment techniques; on-site visits to regional industries that undertake sustainable practices; and a

final research project where experimental design and laboratory techniques are used to assess interactions between technologies and natural systems and their potential for reducing environmental impacts.

ENCE 412 Environmental Engineering Unit Operations (3) Prerequisite: ENCE305 and ENCE310; and permission of ENGR-Civil & Environmental Engineering department. Examination of unit operations and processes encountered in environmental engineering field. Fundamental principles learned from previous classes will be applied into the design and operation of unit operations and processes, particularly in the area of water and wastewater treatment. Similar processes will be applied to air pollution control, solid waste disposal and hazardous waste treatment.

ENCE 420 Selection and Utilization of Construction Equipment (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management minor. Learn to evaluate and select construction equipment with a focus on mechanized equipment for earthwork and building construction.Learn about the parties involved in procurement, operation and maintenance, and how to cost-effectively plan, select, and utilize equipment for earthmoving, paving, formwork, trenching, rock excavation, tunneling, site preparation, and steel and concrete construction. Explore trends in equipment design, construction automation, and robotics.

ENCE 421 Legal Aspects of Architectural and Engineering Practice (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management minor; or must be in the Project Management Minor. Learn the basic structure of the US legal system and court procedures and legal principles relevant to architectural and engineering design and construction contracts including principles of ethical, legal and professional conduct of engineers and architects.Topics include: contracts for design and construction, sales and warranties, torts and product liability, business agency and government agencies, professional liability of architects and engineers, labor laws, expert testimony, mediation and arbitration, tangible property including real estate, intellectual property including trademarks, patents and copyrights, insurance and sureties.

ENCE 422 Project Cost Accounting and Economics (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management Minor; or must be in the Project Management Minor. Learn: the fundamentals of accounting; project cost accounting principles as they apply to project management; project cost accounting; and the fundamentals of engineering economics.Topics include: project feasibility analysis; reading and analyzing financial statements; cash management; cash flow analysis; depreciation and taxes; and impact on profitability; the principles of activity based costing; net present value analysis; the framework for project performance measurement, cost performance indices, and earned value analysis.

ENCE 423 Project Planning, Estimating & Scheduling (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management Minor; or must be in the Project Management Minor. Learn the fundamentals of project planning, estimating, and scheduling. Understand the concepts of planning; to reduce uncertainty, improve efficiency of the operation, to set and meet objectives, and to provide a basis for monitoring and controlling the work. Be introduced to: the concepts of resource definition, assignment and management, and; the basics of project estimating (pricing) methods including global pricing strategies, types of estimates, pricing processes, overhead and profit, and project financing.Learn the basics of project scheduling including; bar charts, network-based methodologies, and linear scheduling techniques. Emphasis is placed on Critical Path Method (CPM)

scheduling, a network based methodology. Be exposed to the use of scheduling software and will actually develop a CPM schedule for an actual construction project as part of a semester project.

ENCE 424 Communication for Project Managers (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management Minor; or must be in the Project Management Minor. Learn the fundamentals of communications for project managers. Emphasis is on interpersonal and group communications; through voice, electronic, and written messages; project cycle and reports and presentations during this cycle; and communications for employment.

ENCE 426 Construction Documentation and BIM Applications in Engineering and Construction (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in the Construction Project Management Minor; or must be in the Project Management Minor. Learn the basics of construction documentation methods, with particular emphasis on Building Information Modeling (BIM). Topics include: the fundamentals of assembly, coordination, and maintenance of construction documents and implementation of BIM techniques in the design and construction processes, and; a review of Autodesk, Revit, and Navisworks and other leading BIM software. Lectures from project management faculty supplemented by guest lecturers from the construction industry.

ENCE 431 Hydrologic Engineering (3) Prerequisite: ENCE305; and permission of ENGR-Civil & Environmental Engineering department. An introduction to basic principles of hydrologic science including the hydrologic cycle, rainfall, surface runoff and streamflow. Special emphasis is placed on hydrologic engineering design of stormwater management and flood control facilities. Design projects are used to illustrate design practices.

ENCE 432 Ground Water Hydrology (3) Prerequisite: ENCE305; and permission of ENGR-Civil & Environmental Engineering department. Concepts related to the development of the ground water resources, hydrology, hydrodynamics of flow through porous media, hydraulics of wells and basin-wide ground water development. Fundamentals of ground water pollution are introduced.

ENCE 441 Foundation Design (3) Prerequisite: ENCE340; and permission of ENGR-Civil & Environmental Engineering department. Critical review of classical lateral earth pressure theories, analysis of retaining walls and reinforced earth walls, subsurface explorations, bearing capacity and settlement of shallow foundations, design of deep foundations that includes both pile foundations and drilled shafts.

ENCE 444 Experimental Methods in Geotechnical Structural Engineering (3) Prerequisite: ENCE353 and ENCE340; and permission of ENGR-Civil & Environmental Engineering department. In the geotechnical engineering part of the course, major soils testing and their interpretation including classification, compaction, strength, and compressibility will be undertaken. The structural engineering part of this course covers test planning, loading apparatus, instrumentation, data acquisition and data analysis, as well as basic aspects of structural testing techniques and shake-table test.

ENCE 447 Pavement Engineering (3) Prerequisite: ENCE340; and permission of ENGR-Civil & Environmental Engineering department. Fundamental principles underlying the design, construction, maintenance and repair, and management of highway and airfield pavement systems. Pavement performance (functional/structural; evaluation); pavement mechanics (multi-layered elastic theory; slab theory); pavement materials (properties and characterization); environmental effects; current rigid and

flexible design methods (new/rehabilitation); construction (new construction; maintenance/repair; rehabilitation); economic evaluation; pavement management.

ENCE 453 Computer-Aided Structural Analysis (3) Prerequisite: ENCE353; and permission of ENGR-Civil & Environmental Engineering department. Computer-aided analysis of structural systems. Unified matrix formulation of stiffness and flexibility methods. Slope deflection method. Evaluation of truss, frame, and grid systems. Non-prismatic and curved elements. Error analysis and determination of ill-conditions. Introduction to finite element methods; formulation of simple two-dimensional elements. In laboratory, use and development of CAD software.

ENCE 454 Design of Concrete Structures (3) Prerequisite: ENCE353; and permission of ENGR-Civil & Environmental Engineering department. Formerly: ENCE451. Combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.

ENCE 455 Design of Steel Structures (3) Prerequisite: ENCE353; and permission of ENGR-Civil & Environmental Engineering department. Behavior and design of members subjected to fatigue, and combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.

ENCE 466 Design of Civil Engineering Systems (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Senior standing. Additional information: Must be taken in the semester in which the student graduates. A major civil engineering design experience that emphasizes development of student creativity, development and use of design methodologies, evaluation of alternate solutions, feasibility considerations, and detailed system descriptions. Realistic design constraints including economic factors, safety, aesthetics, and reliability will be imposed. Students will work in design project groups and be required to exercise oral and written communication skills.

ENCE 470 Highway Engineering (3) Prerequisite: ENCE302 and ENCE370; and permission of ENGR-Civil & Environmental Engineering department. Highway location and design, highway engineering economics, traffic engineering, traffic measurement devices and technologies. Includes discussion of technological advances in traffic flow and capacity, such as signal systems, corridor control, automatic driver information, incident detection and autonomous vehicle operation.

ENCE 472 Transportation Engineering (3) Prerequisite: ENCE302 and ENCE370; and permission of ENGR-Civil & Environmental Engineering department. Transportation engineering concepts including transportation systems analysis, airport systems, airline and airport operations, marine transportation and urban public transportation systems.

ENCE 488 Senior Thesis (3) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Senior standing. Advanced study in civil engineering problems with special emphasis on mathematical modeling and experimental methods.

ENCE 489 Special Problems in Civil Engineering (1-4) Prerequisite: Permission of ENGR-Civil & Environmental Engineering department. Restriction: Senior standing. A course arranged to meet the needs of exceptionally well prepared students for study in a particular field of civil engineering.

ENCO -- Engineering, Cooperative Education

ENCO 098 Co-op/Internship Work Experience () Prerequisite: Permission of ENGR-Dean-Coop Engr Educ & Career Svcs. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and undergraduate students must have a 2.0 GPA to participate and graduate students a 3.0 GPA. Participation in a cooperative education (co-op) or internship program enables students to apply the theories that they have learned in their traditional classes with paid, supervised, career-related work experience that develops technical and professional work skills. Contact the Engineering Co-op & Career Services Office.

ENCO 099 Co-Op/Intern Work Experience () Prerequisite: Permission of ENGR-Dean-Coop Engr Educ & Career Svcs. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and undergraduate students must have a 2.0 GPA to participate and graduate students a 3.0 GPA. Participation in a cooperative education (co-op) or internship program enables students to apply the theories that they have learned in their traditional classes with paid, supervised, career-related work experience that develops technical and professional work skills. Contact the Engineering Co-op & Career Services Office.

ENEE -- Electrical & Computer Engineering

ENEE 101 Introduction to Electrical & Computer Engineering (3) Corequisite: MATH140. And corequisite: ENEE140 or CMSC131; or a score of 5 on the A Java AP exam; or a score of 4 or 5 on the AB Java AP exam; or satisfactory performance on the department's placement exam. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer) ; and students cannot enroll in ENEE101 and ENES100 in the same semester. An exploration of topics within Electrical & Computer Engineering (ECE). Students will be introduced to key elements of both the Electrical Engineering and Computer Engineering curriculum, including: circuits, computing systems and software, communications and controls, electrodynamics and waves, microelectronics, signal processing, and power systems.

ENEE 131 Technology Choices (3) An exploration of the positive and negative effects of technology on society, via diverse criteria to assess the relative well being of individuals and society; an examination of how society can help shape the future of technology and the tools that can be used to make wise technology choices.

ENEE 133 Engineering in Medicine: The body as a machine (3) Examines the role of engineering in human physiology and modern medicine, and explains important human biological functions and medical systems based on elementary physics, chemistry and technology. It is designed specifically for the non-science major. Concepts will be introduced intuitively and at pre-calculus math level. Students will engage in group projects and hands-on experiments to reinforce knowledgeand understanding.

ENEE 140 Introduction to Programming Concepts for Engineers (2) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in Engineering: Electrical program; or must be in Engineering: Materials Science program. Introduction to the programming environment: editing, compiling, UNIX, data types and variable scope; program selection, formatted/unformatted input/output, repetition, functions, arrays and strings.

ENEE 148 Special Topics in Electrical Engineering (1-3) Restriction: Must be in Engineering: Electrical program; and permission of ENGR-Electrical & Computer Engineering department. Repeatable

to 6 credits if content differs. Introductory Electrical Engineering topic selected as announced every semester.

ENEE 150 Intermediate Programming Concepts for Engineers (3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. And ENEE140 or CMSC131; or score of 5 on the A Java AP exam; or score of 4 or 5 on the AB Java AP exam; or satisfactory performance on the department's placement exam. Corequisite: MATH140. Restriction: Must be in Engineering: Electrical program. Credit only granted for: ENEE114 or ENEE150. Formerly: ENEE114. Advanced programming concepts: coding conventions and style; pointers; dynamic memory allocation and data structures; linked lists; graphs; abstract data types; object-oriented design. There will be team-based software projects and group presentations.

ENEE 159 Introductory Topics in Computer Engineering (1-4) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 8 credits if content differs. Selected introductory level topics in computer engineering.

ENEE 181 Explore Electronics (1) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department. Corequisite: MATH140. A highly structured introduction to electronics and circuitry with a hands-on approach to learning. Students will build electronic devices (some of which they can keep) and test them. Among the topics covered are AC and DC circuits, BJTs, op-amps and special projects involving communication and sensing.

ENEE 200 Technology and Consequences: Engineering, Ethics, and Humanity (3) What makes a technology socially responsible? At UMD, the Fearless Ideas campaign asks us to aim our enthusiasm for technology at big real problems. At the same time, we are coming to appreciate the increasingly complex nature of technological systems as they become integrated into all forms of infrastructure, we realize they may be unpredictable, interdependent on social and biological systems, and have unintended consequences. In this midst of this complexity, people make decisions with far reaching impacts. How then do we follow our passion for technology and innovation but also stay skeptical in a way that allows us to consider the potential and shortcomings of technology? Designed for both engineering and non-engineering students wishing to explore and assess the impact of engineering technology on society and the role of society in generating that technology.

ENEE 205 Electric Circuits (4) Prerequisite: Minimum grade of C- in PHYS260; and permission of ENGR-Electrical & Computer Engineering department. Corequisite: MATH246. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE204 or ENEE205. Formerly: ENEE204. Design, analysis, simulation, construction and evaluation of electric circuits. Terminal Relationships. Kirchoff's laws. DC and AC steady state analysis. Node and mesh methods. Thevenin and Norton equivalent circuits. Transient behavior of first- and second-order circuits. Frequency response and transfer functions. Ideal op-amp circuits. Diode and transistor circuits.

ENEE 222 Elements of Discrete Signal Analysis (4) Prerequisite: Minimum grade of C- in MATH141; and permission of ENGR-Electrical & Computer Engineering department. And minimum grade of C- in ENEE140; or minimum grade of C- in CMSC131. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE222, ENEE241, or MATH242. Formerly: ENEE241. Discrete-time and continuous-time signals, sampling. Linear transformers, orthogonal projections. Discrete Fourier Transform and its properties. Fourier Series. Introduction to discrete-time linear filters in both time and frequency domains.

ENEE 241 Numerical Techniques in Engineering (3) Prerequisite: MATH141. And CMSC106; or students who have taken courses with comparable content may contact the department. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or must be in one of the following programs (Mathematics; Physics). Credit only granted for: ENES240 ENEE241, or MATH242. Formerly: ENES240. Introduction to error analysis, conditioning and stability of algorithms. Numerical solution of nonlinear equations. Vector spaces and linear transformations. Matrix algebra. Gaussian elimination. LU factorization, matrix inversion. Similarity transformations and diagonalization. Iterative computation of eigenvalues. Interpolation; splines; data fitting. Numerical integration.

ENEE 244 Digital Logic Design (3) Prerequisite: Must have completed or be concurrently enrolled in CMSC132 or ENEE150; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Sophomore standing or higher; and must be in one of the following programs (Engineering: Computer; Engineering: Electrical). The design and analysis of combinational and synchronous sequential systems comprising digital logic gates and flip-flop memory devices; underlying tools such as switching and Boolean algebras and Karnaugh map simplification of gate networks; design and use of decoders, multiplexers, encoders, adders, registers, counters, sequence recognizers, programmable logic arrays (PLAs), read-only memories (ROMS, PROMS), and similar devices. Arbitrary radix conversion.

ENEE 245 Digital Circuits and Systems Laboratory (2) Prerequisite: Minimum grade of C- in ENEE244. And minimum grade of C- in ENEE150; or minimum grade of C- in CMSC132. And permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Introduction to basic measurement techniques and electrical laboratory equipment (power supplies, oscilloscopes, voltmeters, etc.). Design, construction, and characterization of digital circuits containing logic gates, sequential elements, oscillators, and digital integrated circuits. Introduction to digital design and simulation with the Verilog Hardware Description Language (HDL).

ENEE 303 Analog and Digital Electronics (3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE302 or ENEE303. Conceptual operation of transistors and diodes. Large and small signal operation of BJTs and MOSFETs. Basic transistor configurations. Logic circuits and semiconductor memory. Multi-transistor circuits including differential amplifiers and current mirrors. Frequency response.

ENEE 307 Electronic Circuits Design Laboratory (2) Prerequisite: ENEE303; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE 306 or ENEE 307. Students will design and test analog and digital circuits at the transistor level. FETs and BJTs will be covered. The laboratory experiments will be tightly coordinated with ENEE303 materials.

ENEE 313 Introduction to Device Physics (3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE312 or ENEE313. Basic physics of devices including fields in solids, crystal structure, properties of electrons and holes. Current flow in Si using drift-diffusion model. Properties of the pn junction. Properties of devices including BJTs, FETs and their physical characteristics.

ENEE 322 Signal and System Theory (3) Prerequisite: Minimum grade of C- in MATH246; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Concept of linear systems, state space equations for continuous systems, time and frequency domain analysis of signals and linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.

ENEE 324 Engineering Probability (3) Prerequisite: ENEE322; and completion of all lower-division technical courses in the EE curriculum. Credit only granted for: BMGT231, STAT400 or ENEE324. Additional information: Electrical Engineering and Computer Engineering majors may not substitute STAT400 for ENEE324. These courses are not interchangeable, consult your program requirements or advisor for what is acceptable toward your program of study. Axioms of probability; conditional probability and Bayes' rules; random variables, probability distribution and densities: functions of random variables: weak law of large numbers and central limit theorem. Introduction to random processes; correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.

ENEE 350 Computer Organization (3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Formerly: ENEE250. Additional information: Electrical Engineering and Computer Engineering majors may not substitute CMSC311 for ENEE350. Not open to students who have completed ENEE250. Structure and organization of digital computers. Registers, memory, control and I/O. Data and instruction formats, addressing modes, assembly language programming. Elements of system software, subroutines and their linkages.

ENEE 351 Algorithms and Data Structures (4) Prerequisite: Minimum grade of C- in ENEE150 and ENEE244. Restriction: Permission of ENGR-Electrical & Computer Engineering department; and must be in the Computer Engineering Minor. Credit only granted for: ENEE351 or CMSC351. Introduction to fundamental concepts in computer engineering, including topics in discrete math, data structures and algorithms. The course will also include a hands-on programming component. This course will provide students with the tools to design modular, time and space-efficient algorithms for real-world problems.

ENEE 359 Intermediate Topics in Computer Engineering (1-3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 100- and 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 6 credits if content differs. Selected intermediate level topics in computer engineering.

ENEE 380 Electromagnetic Theory (3) Prerequisite: Minimum grade of C- in MATH241, PHYS270, and PHYS271; and completion of all lower-division technical courses in the EE curriculum; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in Engineering: Electrical program. Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, inductance, time varying fields and Maxwell's equations.

ENEE 381 Electromagnetic Wave Propagation (3) Prerequisite: ENEE380; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. The electromagnetic spectrum: Review of Maxwell's equations; the wave equation potentials,

Poynting's theorem, relationship between circuit theory and fields; propagation of electromagnetic waves in homogeneous media and at interfaces; transmission line theory, waveguides, radiation and antennas.

ENEE 407 Design & Testing of RF and Microwave Devices (2) Prerequisite: Minimum grade of C- in ENEE381; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical) ; and permission of ENGR-Electrical & Computer Engineering department. An introduction to state of the art design, and testing techniques of RF and microwave devices. Designs, simulations and layout of different devices are performed using the software package ADS (Advance Design System). The course highlights wide range of engineering applications including terrestrial microwave links, satellite communications, broadcasting, mobile communications and radar.

ENEE 408 Capstone Design Project (3) Prerequisite: Must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 6 credits if content differs. Culmination of prior course work in electrical and computer engineering. Utilization of modern design tools and methodologies for the design of components or systems under realistic constraints, with particular emphasis on teamwork and oral/written communication. Areas in which projects are currently offered include: microprocessor-based systems, digital systems, VLSI design (both digital and mixed-signal), and optical systems.

ENEE 411 Advanced Analog and Digital Electronics (3) Prerequisite: Minimum grade of C- in ENEE303. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer) ; and must have permission of the department. Credit only granted for: ENEE411 or ENEE419A. Formerly: ENEE419A. Examination of analog and digital device models for analysis, design, and simulation of transistor level electronic circuits, emphasizing Metal Oxide Silicon Field Effect Transistors (MOSFETs); fundamental single transistor configurations; frequency response, feedback, and stability of multi-transistor circuits, such as current mirrors, differential amplifiers, voltage references, operational amplifiers and data converters; complementary Metal Oxide Silicon (CMOS) implementations of static and clocked digital as well as mixed signal circuits.

ENEE 413 Advanced Electronic Devices (3) Prerequisite: Minimum grade of C- in ENEE303. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical) ; and permission of ENGR-Electrical & Computer Engineering department. Credit only granted for: ENEE413 or ENEE480. Formerly: ENEE480. Advanced devices and their physical operation, providing a thorough description of those parts not usually covered in introductory electronics courses. These include Schottky and tunnel junctions, negative resistance devices used in wireless communication, homo-structure compound semiconductor transistors, hetero-structure (quantum effect) transistors, non-volatile memory devices, photonic devices such as LEDs and solid-state lasers, solar cells, photo-detectors and camera imagers, as well as bio-related components. Special consideration will be given to achieve an understanding of noise processes that limit electronic device performance. In all cases, system-level applications will be illustrated.

ENEE 416 Integrated Circuit Fabrication Laboratory (3) Prerequisite: Minimum grade of C- in ENEE303; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Formerly: ENEE419J. Characterization of wafers and fabrication steps. Oxide growth, lithography, dopant diffusion, and metal deposition and patterning will be discussed in the lectures and carried out in the lab in

fabricating NMOS transistor circuits. The transistor characteristics will be measured and related to the fabrication parameters.

ENEE 417 Microelectronics Design Laboratory (2) Prerequisite: Minimum grade of C- in ENEE303; and minimum grade of C- in ENEE307; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Students design and build fairly sophisticated circuits, mainly composed of discrete transistors and integrated circuits. Many of the projects are designed to require that students synthesize from what they have learned in many of the disciplines in electrical engineering. Students learn they can actually use their knowledge to build something very practical, which may include a high-fidelity amplifier, a radio, a memory cell, a transmitter, etc.

ENEE 419 Topics in Microelectronics (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 99 credits if content differs. Selected topics of current importance in microelectronics.

ENEE 420 Communication Systems (3) Prerequisite: ENEE324; and completion of all lower-division technical courses in the EE curriculum. Fourier series, Fourier transforms and linear system analysis; random signals, autocorrelation functions and power spectral densities; analog communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling theorem and pulse-amplitude modulation; digital communication systems pulse-code modulation, phase-shift keying, differential phase shift keying, frequency shift keying; performance of analog and digital communication systems in the presence of noise.

ENEE 425 Digital Signal Processing (3) Prerequisite: ENEE322; and completion of all lower-division technical courses in the EE curriculum. Sampling as a modulation process; aliasing; the sampling theorem; the Z-transform and discrete-time system analysis; direct and computer-aided design of recursive and nonrecursive digital filters; the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT); digital filtering using the FFT; analog-to-digital and digital-to analog conversion; effects of quantization and finite-word-length arithmetic.

ENEE 426 Communication Networks (3) Prerequisite: ENEE324; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. The main design issues associated with computer networks, satellite systems, radio nets, and general communication networks. Application of analytical tools of queuing theory to design problems in such networks. Review of proposed architectures and protocols.

ENEE 428 Communications Design Laboratory (2) Prerequisite: ENEE324; and completion of all lower-division technical courses in the EE curriculum. Corequisite: ENEE425 or ENEE420. Restriction: Must be in Engineering: Electrical program. EE capstone design course. Exploring the signal processing and communication systems theoretical concepts presented in ENEE 420 Communication Systems and ENEE 425 Digital Signal Processing by implementing them on actual DSP based hardware in real time.

ENEE 429 Topics in Communications (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Repeatable to 99 credits if content differs. Selected topics of current importance in communications.

ENEE 439 Topics in Signal Processing (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 99 credits if content differs. Selected topics of current importance in signal processing.

ENEE 440 Microprocessors (3) Prerequisite: ENEE350; and completion of all lower division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Microprocessor architectures, instruction sets, and applications. Bus structures, memory, I/O interfacing. Assembly language programming, LSI device configuration, and the embedding of microprocessors in systems.

ENEE 445 Computer Laboratory (2) Prerequisite: Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206. And minimum grade of C- in ENEE350; and must have earned a minimum grade of regular (letter) C- in all 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). This laboratory course focuses on the hardware/software interface in computer systems. Hand-on experiments are used to teach design, construction, analysis, and measurement of both hardware and software for embedded systems. Projects emphasize using microcontrollers for control, sensing, and communication through various I/O devices.

ENEE 446 Digital Computer Design (3) Prerequisite: ENEE350; and completion of all lower-division technical courses in the EE curriculum. Restriction: Permission of ENGR-Electrical & Computer Engineering department. Credit only granted for: ENEE446 or CMSC411. Hardware design of digital computers. Arithmetic and logic units, adders, multipliers and dividers. Floating-point arithmetic units. Bus and register structures. Control units, both hardwired and microprogrammed. Index registers, stacks, and other addressing schemes. Interrupts, DMA and interfacing.

ENEE 447 Operating Systems (4) Prerequisite: CMSC330, CMSC351, and ENEE350; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in Engineering: Computer program; and permission of ENGR-Electrical & Computer Engineering department. Credit only granted for: ENEE447, CMSC412, or ENEE459S. Formerly: ENEE459S. The course will present the theory, design, implementation and analysis of computer operating systems. Through classroom lectures, homework, and projects, students learn the fundamentals of concurrency, process management, interprocess communication and synchronization, job scheduling algorithms, memory management, input-output devices, file systems, and protection and security in operating systems. Optional topics may include communications protocols, computer security, and real-time operating systems. The lectures will be complemented with a significant level of programming, bringing up a simple operating system from scratch, concurrently as the topics are discussed in lecture. A weekly recitation section will provide TA support and an informal laboratory atmosphere. Each student will have their own board, so development will be done largely outside the classroom at each student's pace.

ENEE 457 Computer Systems Security (3) Prerequisite: Minimum grade of C- in ENEE350; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer) ; and permission of ENGR-Electrical & Computer Engineering department. Credit only granted for: CMSC414, ENEE459C or ENEE457. Formerly: ENEE459C. Theoretical and practical aspects of computer systems security. Topics covered include symmetric/asymmetric encryption, message authentication, digital signatures, access control, as well as network security, web security and cloud security. Students acquire tools necessary for designing secure computer systems and programs and for defending against malicious threats (e.g., viruses, worms, denial of service).

ENEE 459 Topics in Computer Engineering (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 99 credits if content differs. Selected topics of current importance in computer engineering.

ENEE 460 Control Systems (3) Prerequisite: ENEE322; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. Mathematical models for control system components. Transform and time domain methods for linear control systems. Introductory stability theory. Root locus, bode diagrams and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled data systems.

ENEE 461 Control Systems Laboratory (3) Prerequisite: Minimum grade of C- in ENEE205; and minimum grade of C- in ENEE322; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE461, ENME461, or ENME489N. Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control and familiarize them with the characteristics and limitations of real control devices. They will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.

ENEE 463 Digital Control Systems (3) Prerequisite: ENEE322; and completion of lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Formerly: ENEE469E. Introduction to techniques for the analysis and design of linear control systems and implementation of control systems using digital technology. Topics include linearization, solution of linear equations, z-transforms and Laplace transforms, design of linear controllers, optimal control, and digital implementation of control designs. Students will use MATLAB for the solution of problems and the design of control systems.

ENEE 469 Topics in Controls (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum. Repeatable to 99 credits if content differs. Selected topics of current importance in controls.

ENEE 473 Electrical Machines Laboratory (2) Prerequisite: Minimum grade of C- in ENEE205; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Recommended: ENEE322. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Experiments involving single and three phase transformers, induction machines, synchronous machines and D.C. machines.

ENEE 474 Power Systems (3) Prerequisite: ENEE322; and completion of all lower-division technical courses in the EE curriculum. Interconnected power systems, transmission lines, load flow studies, unit commitment and economic dispatch. Three phase networks, machine models. Symmetrical components, fault analysis and unbalanced operation. Power system transients, stability and numerical methods in power system analysis.

ENEE 475 Power Electronics (3) Prerequisite: Minimum grade of C- in ENEE303; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of

ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Electrical; Engineering: Computer). This course is suitable for undergraduate and graduate students who want to learn the basic principles of power electronics and its applications. Special emphasis is placed on interdisciplinary nature of power electronics. Strong and intimate connections between power electronics and circuit theory, electronic circuits, semiconductor devices, electric power, magnetic, motor drives and control are stressed.

ENEE 476 Renewable Energy (3) Prerequisite: Minimum grade of C- in ENEE303; and completion of all lower-divisions ENEE courses with a C- or better. Restriction: Permission of ENGR-Electrical & Computer Engineering department; and must be in one of the following programs (Engineering: Electrical; Engineering: Computer). Credit only granted for: ENEE419R or ENEE476. Formerly: ENEE419R. Solar Energy Conversion Systems: History of Photovoltaic (PV) Systems, PV Cell, Module and Array Models and Equivalent Circuits, Characteristic Resistance, Fill Factor, Effects of Parasitic Resistances, Mismatch Effects, Shading, Bypass Diodes, Sun Tracking Systems, Maximum Power Point Tracking (MPPT) Techniques, Isolated and Non-isolated Switch-mode DC/DC for PV Systems, Inverter Design and Control, Sizing the PV Panel and Battery Pack in PV Applications. Wind Energy Conversion Systems: Introduction to Wind Energy Harvesting, Horizontal and Vertical Wind Systems, Fundamentals of Wind Energy Harvesting Systems, Variable Speed and Fixed Speed Wind Energy Conversion Systems (WECS), Wind Turbines and Different Electrical Machines in Wind Applications, Induction Machine and Dynamic Model of Induction Machines, Synchronous Generators and Dynamic Model of SG, Control of Wind Energy Conversion Systems.

ENEE 486 Optoelectronics Lab (2) Prerequisite: Minimum grade of C- in ENEE205; or minimum grade of C- in ENEE206. And minimum grade of C- in PHYS271 and PHYS270; and must have earned a minimum grade of regular (letter) C- in all required 200-level ENEE courses; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Hands-on experience in performing measurements in optics and electro-optics. Basics of optics, light detectors, Fourier optics, gratings and spectrometers, pulsed dye lasers, fiber optics, electro-optics, and acousto-optics.

ENEE 488 Independent Study in Electrical and Computer Engineering (1-3) Prerequisite: Must have completed and earned a minimum grade of regular (letter) C- in all lower-division EE or CP tech electives; and permission of ENGR-Electrical & Computer Engineering department. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 9 credits if content differs. Additional information: A total of 5 credits combined of ENEE488 and ENEE499 can count towards a degree in electrical and computer engineering. The purpose is to provide students with an opportunity for independent study projects on advanced electrical and computer engineering topics. These projects typically involve academic investigations of technical themes that are not addressed in the established elective and special topics courses taught by the department on a regular basis. Study plans are tailored to students educational goals but are approved and supervised by faculty.

ENEE 489 Topics in Electrophysics (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Repeatable to 99 credits if content differs. Selected topics of current importance in electrophysics.

ENEE 490 Physical Principles of Wireless Communications (3) Prerequisite: ENEE381. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Credit only granted for: ENEE490 or ENEE498B. Formerly: ENEE498B.

ENEE 496 Lasers and Electro-optic Devices (3) Prerequisite: ENEE381; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in one of the following programs (Engineering: Computer; Engineering: Electrical). Modern physical optics: Gaussian beams, optical resonators, optical waveguides; theory of laser oscillation, rate equations; common laser systems. Selected modern optoelectronic devices like detectors and modulators. Role of lasers and optoelectronics in modern technology.

ENEE 498 Topics in Electrical Engineering (1-3) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. Repeatable to 99 credits if content differs. Formerly: ENEE488. Selected topics of current importance in electrical engineering.

ENEE 499 Senior Projects in Electrical and Computer Engineering (1-5) Prerequisite: Permission of ENGR-Electrical & Computer Engineering department; and completion of all lower-division technical courses in the EE curriculum. Restriction: Must be in Engineering: Electrical program. Repeatable to 9 credits if content differs. Formerly: ENEE418. Additional information: A total of 5 credits combined of ENEE448 and ENEE499 can count toward a degree in electrical or computer engineering. The purpose is to provide students with an opportunity to engage in independent research projects on advanced electrical and computer engineering topics. Projects are selected by students and supervised by faculty and other qualified mentors. While students may be required to acquire new skills or information in the course of completing a 499 project, the focus is to conduct an independent investigation of a technical theme by the student. The project may be used to satisfy the advanced lab requirement if it is approved as a primarily - experimental research project. In that case, the student will enroll in ENEE499L.

ENES -- Engineering Science

ENES 100 Introduction to Engineering Design (3) Corequisite: MATH140. Students work as teams to design and build a product using computer software for word-processing, spreadsheet, CAD, and communication skills.

ENES 102 Mechanics I (3) Corequisite: MATH140. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Formerly: ENES110. The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, centroids, moment of inertia, beams, friction, stress/strain, material properties. Vector and scalar methods are used to solve problems.

ENES 104 Introduction to Materials and their Applications (3) Restriction: Must be in the Young Scholars Program. Creating a new technology, nanotechnology, biotechnology, or plastic electronics requires developing the materials first. In this class we'll explore materials science and engineering where engineers change the properties and/or behavior of a material to make them more useful. The course covers the chemical composition, phase transformations, corrosion and mechanical properties of materials as well as their electrical, thermal, magnetic and optical properties. Learn about the unlimited possibilities for innovation and adaption through the exciting field of nanotechnology.

ENES 106 Achieving Success in Mathematics (3) Restriction: Permission of ENGR-A. James Clark School of Engineering. An exploration of the skills and habits needed to successfully complete introductory mathematics courses.

ENES 107 Achieving College Excellence (1-3) Restriction: Permission of ENGR-A. James Clark School of Engineering. An exploration of the skills and habits needed to successfully complete the introductory

chemistry course for engineering students. Course will also include strategies for a successful first year experience.

ENES 108 Achieving College Success: First Year Transition (1) Restriction: Permission of ENGR-A. James Clark School of Engineering. Repeatable to 2 credits if content differs. An exploration of the skills and habits needed to successfully complete the first year of study for Science, Technology, Engineering, and Mathematics (STEM) majors. This course is an extension of the college success seminars taught during the Summer Bridge Program.

ENES 113 Virtus Living and Learning Community Seminar I (1) Restriction: Must be in first year Virtus program. The seminar focuses on personal and professional development related to the field of engineering with a strong emphasis on clarifying career goals and decisions. Additional topics include an introduction to basic tools, undergraduate research opportunities, and campus and engineering resources.

ENES 114 Virtus Seminar II (1) Prerequisite: ENES113. Restriction: Students must be participants in the Virtus Living and Learning Community. Focus on personal and professional development with engineering with a strong emphasis on career development. Learn to employ strategies and skills for academic and professional success.

ENES 115 FLEXUS Living and Learning Community Seminar I (1) Restriction: Must be a first year FLEXUS Participant. The seminar focuses on personal and professional development related to the field of engineering with a strong emphasis on clarifying career goals and decisions. Additional topics include an introduction to campus and engineering resources, basic tools, and undergraduate research opportunities. Students will discuss issues of concern through a variety of book readings, self-reflections, and panel discussions with practicing women engineers.

ENES 116 FLEXUS Living and Learning Community Seminar II (1) Prerequisite: ENES215, ENES115, and ENES116. Restriction: Must be a second year FLEXUS participant (coded as WCY). The seminar focuses on personal and professional development by enhancing technical ability, understanding educational options through minors and student projects in engineering, identifying and employing strategies and skills for academic and professional success, and developing career commitment through networking and mentoring. Students develop professional portfolios in preparation for a future internship or job.

ENES 140 Discovering New Ventures (3) Additional information: This course may count as an elective for a student at the University of Maryland, depending on the student's specific degree program. It cannot be counted towards the requirements for the Smith School of Business Entrepreneurship Fellow Program. Students explore dynamic company startup topics by working in teams to design a new venture. This multi-disciplinary course helps students to learn the basic business, strategy, and leadership skills needed to launch new ventures. Topics include learning how to assess the feasibility of a startup venture, as well as how to apply best practices for planning, launching, and managing new companies. Students discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunities, assess the skills and talents of successful entrepreneurs, and learn models that help them navigate uncertainty.

ENES 141 Introduction to High-Tech Product Development and Marketing (3) Multi-disciplinary course covers basic concepts in technology marketing, business, engineering, and entrepreneurship in the context of developing and marketing innovative technology products and services. Mix of lectures, experiential learning, and hands-on team projects, culminating in student team presentations of high-tech product concepts and marketing plans.

ENES 143 Communication Essentials for Entrepreneurs (3) Credit only granted for: COMM107, COMM200, ENES143, INAG110, JOUR130, or THET285. Learn the processes and skills needed to give effective business presentations related to start-up ventures. Focus on how to research topics and companies; organize material based on speaking goals; analyze audience groups to meet speaking expectations; prepare informative and compelling presentation slides; deliver speeches professionally and effectively, and actively listen and provide speaker feedback to fellow students.

ENES 151 EES Fellows First Year Seminar I (1) Restriction: Restricted to EES Fellows students. This course is designed to prepare you to be successful in your first year in engineering, and throughout your educational career and work experiences. We will discuss Clark School education and research programs, the future of engineering, engineering as a profession, student communities and projects, and success skills.

ENES 152 Engineering Transfer Seminar I (1) Restriction: Restricted to EES Fellow students and new transfer students. An introduction to University life for new transfer engineering students. Students will explore how to successfully bridge the gap between the community college and the university. Students will explore campus resources and learn about internships, undergraduate research, study abroad and other academic opportunities. During the semester we will focus on areas that promote academic success and time management, effective study skills, career decision-making, and student development processes will also be explored.

ENES 154 EES Fellows Seminar II (1) Prerequisite: ENES151 or ENES152. The main objective of the course is to help students gain the skills and knowledge necessary for an effective transition into industry and/or graduate school.

ENES 181 Dialogue with the Dean (1) Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and must be a new freshman or transfer student. Introduction to Engineering as a Profession, Overview of Martin Institute and Clark School Education and Research Programs, The Future of Engineering and Engineering Education, Basic Technological Literacy, Business and Entrepreneurship Issues for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, What the corporate sector expects from a new engineering graduate.

ENES 190 Introduction to Design and Quality (4) Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Also offered as: BMGT190. Credit only granted for: BMGT190 or ENES190. Expose engineering and business students to the principles of total quality, using experiential team learning and technology aided approaches. The first of four courses in total quality.

ENES 210 Entrepreneurial Opportunity Analysis and Decision-Making in 21st Century Technology Ventures (3) This multi-disciplinary course helps students learn the principles of entrepreneurial opportunity analysis and decision-making in an increasingly dynamic and technically-inclined society. Emphasis is placed on how aspiring technology entrepreneurs can develop their entrepreneurial perspectives to develop winning entrepreneurial plans for their future ventures.

ENES 211 Introduction to Global Entrepreneurship (1) Examines the opportunities and challenges of entrepreneurship and innovation from an international perspective through lectures, case studies, instructors, and guest speakers with international experiences and other relevant activities. Focuses on the benefit for every entrepreneur and innovator to understand the cultural, strategic and operational aspects related to conducting entrepreneurial ventures in an international context.

ENES 213 Virtus Living and Learning Community Seminar III (1) Prerequisite: ENES113. Restriction: Must be a participant in the second year of the Virtus program. The seminar focuses on personal, academic and professional success by cultivating leadership skills, developing academic and technical ability and encouraging self awareness, identifying and employing strategies for academic and professional success, further enhancing career development through networking and mentoring and developing awareness of diversity issues.

ENES 214 Virtus Seminar IV (1) Prerequisite: Students must have completed ENES213. Restriction: Students must be participants in the Virtus Living and Learning Community. Students continue to develop their leadership and mentoring skills, participate in networking opportunities and explore their interest in special engineering topics.

ENES 215 FLEXUS Living and Learning Community Seminar III (1) Prerequisite: ENES115 and ENES116. Restriction: Must be a second year FLEXUS participant. The seminar focuses on personal, academic and professional success by cultivating leadership skills, developing self-confidence and self-efficacy in academic and technical ability and encouraging self awareness, identifying and employing strategies for academic and professional success, further enhancing career development through networking, mentoring and role modeling, and developing awareness of diversity issues, specifically gender diversity.

ENES 216 FLEXUS Living and Learning Community Seminar IV (1) Prerequisite: ENES115, ENES116, and ENES215. Restriction: Restricted to second year FLEXUS participants. The seminar focuses on gender diversity and its cross-sections with culture. Students continue to enhance their leadership and mentoring skills, participate in networking opportunities with women in leadership roles and careers in engineering, and engage in opportunities for outreach and service-learning. Students will also complete a culminating semester project.

ENES 220 Mechanics II (3) Prerequisite: Minimum grade of C- in ENES102; and (MATH141 and PHYS161). Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; and must not be in Engineering: Electrical program. Stress and deformation of solids-rods, beams, shafts, columns, tanks, and other structural, machine and vehicle members. Topics include stress transformation using Mohr's circle; shear and moment diagrams; derivation of elastic curves; and Euler's buckling formula. Design problems related to this material are given in lab.

ENES 221 Dynamics (3) Prerequisite: Minimum grade of C- in ENES102; and (MATH141 and PHYS161). Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Systems of heavy particles and rigid bodies at rest and in motion. Force-acceleration, work-energy and impulse-momentum relationships. Motion of one body relative to another in a plane and in space.

ENES 232 Thermodynamics (3) Prerequisite: PHYS261 and PHYS260. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Credit only granted for: BIOE232, CHBE301, ENCH300, ENES232, ENME320, or ENME232. Formerly: ENME232 and ENME320. Introduction to thermodynamics. Thermodynamic properties of matter. First and second laws of thermodynamics, cycles, reactions, and mixtures.

ENES 259 Study Abroad Special Topics in Engineering II (1-6) Repeatable to 6 credits if content differs. Special topics course in engineering science taken as part of an approved study abroad program.

ENES 269 Topics in Grand Challenges for Engineering in a Global Context (3) Repeatable to 6 credits if content differs. Additional information: Course includes a study abroad component. No

engineering background is required. Special topics course that explores the grand engineering challenges facing the world from a technical, cultural, political, and economic perspective, as well as solutions developed through innovation and technology. Topics can include energy, environment, urban infrastructure, health, safety and security, and engineering the tools of discovery.

ENES 288 Engineering Leadership Seminar (1-4) Corequisite: ENES100; or permission of instructor. Engineering leadership will be examined at the individual, team and organizational levels.

ENES 304 RISE Seminar (1) Restriction: Must be in the Engineering RISE Leadership Program; and permission of ENGR-A. James Clark School of Engineering. This is the first semester of a two semester sequence taken by RISE students in their first semester in the program. T he purpose of ENES 304 is for RISE students to learn about leadership, acquire leadership skills, and understand how to integrate leadership theories and concepts in engineering practice. There will be a mix of formal lectures by course faculty and lectures by distinguished speakers who can provide their own experience of what leadership means and how it is acquired. Students will explore their own leadership philosophy and leadership capacities in the context of group practice. Students will make meaning of general leadership theories and concepts and understand how to apply them to engineering industry. Students will also gain understanding of leadership through the stories shared by distinguished speakers with industrial, governmental and academic experience.

ENES 305 RISE Leadership Seminar (1) Prerequisite: Permission of ENGR-A. James Clark School of Engineering; and ENES304. This is the second semester of a two semester sequence taken by RISE students in their final semester in the program. The purpose of ENES 305 is for RISE students to learn about leadership, acquire leadership skills, and understand how to integrate leadership theories and concepts in engineering practice. There will be a mix of formal lectures by course faculty and lectures by distinguished speakers who can provide their own experience of what leadership means and how it is acquired. Students will explore their own leadership philosophy and leadership capacities in the context of group practice. Students will make meaning of general leadership theories and concepts and understand how to apply them to engineering industry. Students will also gain understanding of leadership through the stories shared by distinguished speakers with industrial, governmental and academic experience.

ENES 316 Global Leadership in Engineering, Business, & Technology (3) Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or permission of instructor. Additional information: Students will be required to participate in off-campus industry visits outside of the formal class meeting time. An introduction to global leadership research, theories, and practice with an emphasis on applied dimensions of global leadership in the engineering, business, and technology sectors. This course prepares students to further their knowledge and capacities for global leadership to be successful in industry.

ENES 317 Introduction to Engineering Leadership (3) Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Focus is placed on general leadership theories in addition to real-world applications of leadership in engineering education, industry, and government.

ENES 388 Engineering Honors Seminar (1)

ENES 389 Selected Topics (3) Repeatable to 6 credits if content differs.

ENES 390 Systems Thinking for Managerial Decision Making (3) Prerequisite: ENES190 or BMGT190. Restriction: Must be in the QUEST program. Also offered as: BMGT390. Credit only granted for: BMGT390, BMGT498X, ENES390, or ENES498X. An introduction to the theory, concepts, tools,

and practices of systems thinking to enhance managerial decision making. Offers a blend of theory, real-life examples, and proven methods to initiate and sustain an organization-wide reorientation towards systems thinking.

ENES 397 Mentoring Design and Quality Teams (3) Restriction: Restricted to QUEST Program (TQMP) students. Also offered as: BMGT397. Credit only granted for: BMGT397, ENES397, or BMGT398D. Formerly: BMGT398D. Practice essential skills for leading and coaching multidisciplinary teams. These include effective communications, facilitation, conflict resolution, and the ability to motivate. Students will practice these skills as mentors for student teams from BMGT/ENES 190H. In the process, they will strengthen their knowledge of design and quality techniques.

ENES 424 Engineering Leadership Capstone (3) Prerequisite: ENES472, ENCE320, and ENES317; and permission of ENGR-A. James Clark School of Engineering. Recommended: ENES100. The work initiated in the Introduction to Engineering Leadership course brings together further exploration of leadership styles and concepts.

ENES 435 Product Liability and Regulation (3) Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

ENES 440 Science, Technology and Society: Certificate Program Capstone (3) Restriction: Must be in the Science, Technology and Society certificate program; or permission of ENGR-A. James Clark School of Engineering. Credit only granted for: ENES440 or UNIV401. Formerly: UNIV401. Capstone research seminar for students in the Science, Technology and Society certificate program.

ENES 458 Topics in International Engineering (1-4) Prerequisite: ENES100. Repeatable to 12 credits if content differs. A variety of topics related to engineering in a global context are discussed including cultural aspects, cross-cultural communication, international standards and law, and engineering and technology issues, business behavior, attitudes and values of selected countries and regions.

ENES 459 Study Abroad Special Topics in Engineering IV (1-6) Repeatable to 15 credits if content differs. Special topics course in engineering science taken as part of an approved study abroad program.

ENES 460 Fundamentals of Technology Start-Up Ventures (3) Restriction: Permission of ENGR-Maryland Technology Enterprise Institute. Credit only granted for: ENES460, BMGT461 or HLMN470. Additional information: Course may not be used to fulfill any BMGT major or minor program requirement. Fundamental aspects of creating, organizing, funding, managing, and growing a technology startup venture. This multidisciplinary course will draw on management, business, legal, financial, as well as technical, concepts. Students form teams and develop a business plan for a technology company, based on each team's own business idea and then present the plan to a panel of outside experts.

ENES 461 Advanced Entrepreneurial Opportunity Analysis in Technology Ventures (3) Explores the factors that influence entrepreneurial opportunity analysis in technology-based ventures. Uses a cognitive theoretical framework to examine the integration of motivation, emotions and information processing modes to make complex entrepreneurial decisions in fast pace technology venture environments.

ENES 462 Marketing High-Technology Products and Innovations (3) Restriction: Permission of ENGR-Maryland Technology Enterprise Institute. Additional information: Course may not be used to fulfill any BMGT major or minor program requirement. Examines the opportunities and challenges of marketing high-technology products in turbulent environments requiring rapid decision making with incomplete information. Explores how innovations are introduced at frequent intervals, research-and-development spending is vital, and there are high mortality rates for both products and businesses.

ENES 463 Strategies for Managing Innovation (3) Restriction: Permission of ENGR-Maryland Technology Enterprise Institute. Credit only granted for: ENES463, BMGT467 or HLMN472. Additional information: Course may not be used to fulfill any BMGT major or minor program requirement. Emphasizes how the technology entrepreneur can use strategic management of innovation and technology to enhance firm performance. Examines the process of technological change, the ways that firms come up with innovations, the strategies that firms use to benefit from innovation, and the process of formulating technology strategy. Provides frameworks for analyzing key aspects of these industries and teaches students how to apply these frameworks.

ENES 464 International Entrepreneurship and Innovation (3) Restriction: Permission of ENGR-Maryland Technology Enterprise Institute. Additional information: Course may not be used to fulfill any BMGT major or minor program requirement. Focuses on the need for every entrepreneur and innovator to understand the global market in today's hypercompetitive world, and to appreciate how to compete effectively in domestic markets by managing international competitors, suppliers, and influences. Explore how the distinction between foreign and domestic markets is becoming less pronounced. Develop skills to identify and manage opportunities on a global basis.

ENES 465 Entrepreneurial Design Thinking (3) Explores the use of design thinking as an approach to developing customer-centered solutions to problems and fostering sustained innovation within an orgranization. Through interactive lectures, discussions, and hands-on, team-based activities, students will learn design thinking strategies and apply them to finding innovative product- or service-based solutions to contemporary issues.

ENES 466 Leading and Financing the Technology Venture (3) Restriction: Permission of ENGR-Maryland Technology Enterprise Institute. Credit only granted for: ENES466, BMGT365 or HLMN471. Additional information: Course may not be used to fulfill any BMGT major or minor program requirement. Focuses on the challenges of leading and financing new technology ventures. Leadership topics include team selection and formation, aligning rewards with relative contributions of team members, and how early decisions can enable or prevent founders from achieving results that align with their individual motivations for becoming an entrepreneur. Essential tools and methods for building a strong financial foundation for a new technology venture are examined. Includes important accounting principles as well as methods for keeping financial control of the technology venture. Insights are shared on navigating the multitude of financial barriers that may block your entrepreneurial success, as well as how to grow the technology venture from concept through launch.

ENES 471 Legal Aspects of Entrepreneurship (3) Additional information: Course may not be used to fulfill any BMGT major or minor program requirement. Explores critical legal and business issues entrepreneurs face as they build and launch a new venture. Examines real world scenarios, and addresses the legal issues at all of the important junctures along the path to success. Significant attention placed on new venture formation, intellectual property management, and financing arrangements.

ENES 472 International Business Cultures in Engineering and Technology (3) Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Restriction: Sophomore standing or higher.

Also offered as: SLLC472. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439T. The goal is to provide students with an understanding of cultural aspects pertaining to global business and engineering and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

ENES 474 Global Perspectives of Engineering (3) Prerequisite: ENES100; or permission of ENGR-A. James Clark School of Engineering. Restriction: Must be in the International Engineering Minor. Credit only granted for: ENES458M or ENES474. Formerly: ENES458M. Faculty supervised research on aspects of engineering in a foreign country including leading fields of research, key world markets, and the culture of the engineering workplace. Students will produce a comprehensive report exhibiting their expertise in their chosen country and the field of engineering within.

ENES 478 Topics in Engineering Education (1) Restriction: Must be in the Engineering Teaching Fellow program. Repeatable to 3 credits if content differs. Topics related to teaching engineering courses, particularly project-based courses. Topics can include learning styles, student development theory, multicultural issues in teaching, facilitating team experiences, assessment, and academic integrity.

ENES 480 Engineering Honors Seminar I (1) Restriction: Must be in College of Engineering Honors; and junior standing or higher. Introduction to engineering leadership, professionalism, and ethics. Discussions of leadership style, elements of success, professional communication, codes of ethics, handling of ethical dilemmas, and the characteristics of a professional.

ENES 481 Engineering Honors Seminar II (1) Restriction: Must be in College of Engineering Honors; and junior standing or higher. Introduction to engineering creativity and innovation in engineering. Application of methods of creativity to topics in communication, conducting research, and leadership.

ENES 489 Special Topics in Engineering (3-6) Prerequisite: Permission of ENGR-A. James Clark School of Engineering. Repeatable to 6 credits if content differs. Special topics in engineering.

ENES 490 Quest Consulting and Innovation Practicum (4) Prerequisite: ENES390 or BMGT390. Also offered as: BMGT490. Credit only granted for: BMGT490 or ENES490. Final course in the QUEST Honors Fellows Program three-course curriculum. Based on a team-based consulting project with one of QUEST's professional partners. A project advisor and professional champion supervise each student team. Requires extensive out-of-class work.

ENES 491 Defining Consulting and Innovation Projects (3) Prerequisite: BMGT190 or ENES190. Restriction: Restricted to QUEST Program (TQMP) students. Also offered as: BMGT491. Credit only granted for: BMGT491, ENES491 or BMGT438D. Formerly: BMGT438D. Cultivate relationships with new and current corporate partners and prepare project scopes for QUEST's capstone course, BMGT/ENES 490H. Requires independent work communicating with clients and class visits to a variety of potential project sites.

ENES 498 Special Topics in Entrepreneurship (3) Restriction: Must be in Hinman CEOs Program. Repeatable to 12 credits if content differs. This entrepreneurship seminar and case study-based course will explore technology entrepreneurship with a focus on leadership, marketing, team-building, and management of new technology ventures and assumes baseline knowledge of entrepreneurship. Students will learn skills needed to succeed as a technology entrepreneur and how to apply best practices for planning, launching, and growing new companies. This course is a requirement of the Hinman CEOs program.

ENES 499 Senior Projects in Engineering (3) Prerequisite: Permission of ENGR-A. James Clark School of Engineering; and completion of all 1XX and 2xx level (lower-division) technical courses in engineering major with a C- or better. Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Repeatable to 6 credits if content differs. Students will work in large teams to solve a multidisciplinary research/design problem. The course will begin with students identifying opportunities, brainstorming project concepts to address these opportunities, applying lean startup and design thinking strategies, and then selecting/proposing a project for the semester. Acceptable projects will require the multidisciplinary design, construction and testing of a project within limited budget and time constraints.

ENFP -- Engineering, Fire Protection

ENFP 101 Introduction to Fire Protection Engineering (1) Restriction: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP108 or ENFP101. Formerly: ENFP108. This course will introduce students to the impact of fire on people, property and the environment and methods to mitigate the threat of fire. Student teams will apply the principles of fire behavior and fire safety systems covered in the first half of the course to design, build and test a fire safe, small-scale apartment. A final experiment will be conducted to provide an assessment of the complete designs of each team.

ENFP 102 Fire Safe Building Designs (3) Students are introduced to Fire Protection Engineering (FPE). Discussions on contemporary fire safety topics are designed to raise your interest and understanding of fire, its impact on people, property and the environment and methods to mitigate the threat of fire. Students will have hands-on experiences through a set of demonstrations and a final experiment to explore fire behavior and the performance of fire safety systems. The final experiment will apply the principles of fire behavior and fire safety systems to build and test a fire safe, small-scale residence.

ENFP 108 Hot Topics in Fire Protection Engineering (1) Restriction: Must be in a major in ENGR-A. James Clark School of Engineering; or permission of ENGR-Fire Protection Engineering department. Repeatable to 2 credits if content differs. Current issues of importance to fire protection engineering. Topics focus on advances in basic fire science, computerized fire modeling, safety systems, human behavior and fire, fire toxicity, risk analysis, performance based fire safety, fire reconstruction, arson and evidence, voluntary fire safety standards, codes, and relations with other disciplines including architecture and the built environment, loss prevention and fire insurance.

ENFP 250 Introduction to Life Safety Analysis (3) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP250 or ENFP251. Formerly: ENFP251. Introduction to fire protection engineering and building regulation, building safety systems, and egress system design. Evacuation modeling. Human behavior in fires. Tenability Analysis.

ENFP 300 Fire Protection Fluid Mechanics (3) Prerequisite: MATH246; and must have completed or be concurrently enrolled in PHYS260 and PHYS261. Restriction: Permission of ENGR-Fire Protection Engineering department. Presents students with the fundamental properties of fluids and fluid movement. Both static and dynamic fluid problems will be considered with an emphasis on fire protection systems.

ENFP 310 Water Based Fire Protection Systems Design (3) Prerequisite: ENFP300. Corequisite: ENFP312. Restriction: Permission of ENGR-Fire Protection Engineering department. Introduction to aqueous fire suppression. Discussion of key fluid dynamics and heat transfer processes in aqueous fire suppression. System design and performance analysis based on national standards, hydraulic theory and elementary fluid dynamics and heat transfer.

ENFP 312 Heat and Mass Transfer (3) Prerequisite: ENES232 and ENFP300. Restriction: Permission of ENGR-Fire Protection Engineering department. Fundamentals of heat and mass transfer. Conduction, convection, and radiation modes of heat transfer. Diffusion concepts and evaporation phenomena. Problem solving techniques with application to fire problems.

ENFP 320 Fire Assessment Methods and Laboratory (4) Prerequisite: ENFP312. Restriction: Must be in Engineering: Fire Protection program. Experimental evaluation of ignition, flame spread, rate of heat release and smoke production of furnishings and interior finish materials.

ENFP 350 Professional Development Seminar (1) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Restriction: Junior standing or higher. Credit only granted for: ENFP350 or ENFP450. Formerly: ENFP450. An integrative, upper level professional development seminar covering topics such as engineering ethics, professional licensing, codes and standards, intellectual property, career selection and various contemporary issues in fire protection engineering.

ENFP 405 Structural Fire Protection (3) Prerequisite: ENES220. Restriction: Must be in Engineering: Fire Protection program; and permission of ENGR-Fire Protection Engineering department. Effects of elevated temperature on structural materials; steel, concrete, wood, gypsum, glass and reinforced plastics. Experimental evaluation of fire resistance of building assemblies. Analytical methods to evaluate fire resistance of structural members.

ENFP 410 Advanced Fire Suppression (3) Prerequisite: ENFP310 and ENFP312. Restriction: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP 410, ENFP489L, ENFP 653, or ENFP629C. Analysis of application and theory of fire suppression systems. The key elements of fire suppression systems will be discussed along with how they interact for effective fire suppression design. Physical mechanisms for a variety of fire suppression approaches will be discussed including hose streams, sprinklers, water mist, foam, clean agents, and chemical agents.

ENFP 411 Risk-Informed Performance Based Design (3) Restriction: Senior standing; or permission of ENGR-Fire Protection Engineering department. Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.

ENFP 413 Advanced Life Safety Analysis (3) Prerequisite: ENFP250. Restriction: Permission of ENGR-Fire Protection Engineering department. Also offered as: ENFP613. Credit only granted for: ENFP413 or ENFP613. Fractional effective dose (FED) methods for predicting time to incapacitation and death of fires for use in fire safety calculations. Physiology and toxicology of the fire effluent components, decomposition chemistry of common materials, standard experimental approaches. Predictive models of material production rates. People movement characteristics related to building evacuation. Formulation and application of evacuation models. Human behavior factors affecting response of people to fire situations.

ENFP 415 Fire Dynamics (3) Prerequisite: ENFP312. Restriction: Permission of ENGR-Fire Protection Engineering department. Also offered as: ENFP651. Credit only granted for: ENFP415 or ENFP651. Designed to give students a quantitative understanding of fire behavior. The fundamentals of physics and chemistry of combustion are presented and used to derive key analytical relationships that describe fire growth. Application of these relationships to the analysis of common fire scenarios is emphasized.

ENFP 425 Enclosure Fire Modeling (3) Prerequisite: ENES232, ENFP300, and ENFP312. Restriction: Must be in Engineering: Fire Protection program; and senior standing; and permission of ENGR-Fire Protection Engineering department. An introduction to enclosure fire dynamics through the development of fire modeling algorithms and the application of computer-based fire modeling techniques. The objectives of the course are: to provide a basic understanding of enclosure fire dynamics with an emphasis on a system-level viewpoint (i.e., a global description of the coupling between combustion dynamics, smoke filling, vent flows and heat transfer); and to provide an introduction to the zone modeling approach. Topics covered include a review of the mathematical formulation of zone models, a discussion of numerical integration of the zone modeling equations (using MATLAB), and an introduction to zone modeling software used by professional engineers (e.g., CFAST).

ENFP 426 Computational Methods in Fire Protection (3) Prerequisite: ENFP425. Restriction: Permission of ENGR-Fire Protection Engineering department. Credit only granted for: ENFP426 or ENFP416. Introduction to computer-based fire modeling: zone modeling and Computational Fluid Dynamics (CFD); documentation of input data, validation and verification tests.

ENFP 429 Independent Studies (1-3) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Restriction: Must be in Engineering: Fire Protection program. Repeatable to 6 credits if content differs. For students who have definite plans for individual study of approved problems, or study of an advanced topic selected in conjunction with the faculty.

ENFP 435 Product Liability and Regulation (3) Restriction: Junior standing or higher. Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

ENFP 440 Smoke Management and Fire Alarm Systems (3) Prerequisite: ENFP300. Restriction: Permission of ENGR-Fire Protection Engineering department. Also offered as: ENFP627. Credit only granted for: ENFP440 or ENFP627. Analysis of hazard posed by smoke in buildings. Performance characteristics of smoke management systems. Review of analytical design aids. Functional analysis and design of fire detection and alerting systems. Examination and evaluation of code criteria, performance specifications and research.

ENFP 464 Industrial Fire Safety (3) Prerequisite: Students must be of senior standing. Restriction: Permission of ENGR-Fire Protection Engineering department. Also offered as: ENFP664. Credit only granted for: ENFP464, ENFP489I, ENFP629I OR ENFP664.. Formerly: ENFP489I. Additional information: The course will be taught as a dual senior-level undergraduate course and graduate course. Designed to introduce students to the basics of process safety with a focus on the methods and techniques that may be utilized when evaluating the existing or proposed safety protection solutions in industrial facilities. An emphasis is placed on properly identifying the hazards that are present, the risk exposure, and how best to address the risk. The foundation is laid by presenting the necessary background information on industrial processes and integrating this information with applicable fire/explosion safety science.

ENFP 465 Fire and Explosion Investigations (3) Prerequisite: Student should have senior standing. Restriction: Permission of ENGR-A. James Clark School of Engineering. Credit only granted for: ENFP489N, ENFP629N OR ENFP665. Formerly: ENFP489N. Additional information: The course will be taught as a dual senior-level undergraduate course and graduate course. Presents an overview of fire

and explosion investigation and reconstruction. Information on field techniques, applicable standards and best practices will be presented along with how fire science and fire dynamics can be applied to forensic analysis. Additionally laboratory work will be conducted to illustrate the application of fire dynamics to forensic scenes to assist in the determination of cause and evaluation of potential fire growth scenarios. Sample experiments include 2nd item ignition tests, ignition delay tests, and the course culminates with a series of 1:12 reduced scale house burns to allow the students to investigate and document a fire. This course also qualifies the student to sit for the NAFI Certified Fire Investigator test.

ENFP 489 Special Topics (3) Prerequisite: Permission of ENGR-Fire Protection Engineering department. Repeatable to 6 credits. Selected topics of current importance to fire protection.

ENGL -- English

ENGL 101 Academic Writing (3) Additional information: Any student who has not successfully completed this course by Fall 2017 must complete this course with a minimum grade of C- in order to fulfill the General Education Fundamental Studies Academic Writing requirement. An introductory course in expository writing.

ENGL 120 Acting Human: Shakespeare and the Drama of Identity (3) Credit only granted for: ENGL120 or ENGL289I. Formerly: ENGL289I. Shakespeare's ideas of dramatic realism studied through close examination of literary and dramatic techniques. How Shakespeare generates the fiction of a living, thinking person in the space of five acts, and how readers participate in the making of that fiction. Some attention to Shakespeare on film and what the playwright can teach us about different media.

ENGL 125 Why Poetry Matters (3) Credit only granted for: ENGL125 or ENGL289P. Formerly: ENGL289P. Introduction to the formal fundamentals of poetry and exploration of the role poetry plays in how we think about the human condition; what constitutes knowledge and wisdom, interior subjectivity and communal identity; and how this knowledge is to be used in confronting new challenges and the perennial questions: how to live with oneself, and as oneself; in time, and with others; here, where we reside; and elsewhere, where we imagine ourselves going.

ENGL 130 Race and the Cultural Politics of Blood: A Historical Perspective (3) Credit only granted for: ENGL130 or ENGL237. Formerly: ENGL237. Exploration of race, as term and concept, at three different historical times and from three different perspectives, through the reading of three stories: William Shakespeare's drama Othello, Aphra Behn's novella Oroonoko, and the short story Benito Cereno by Herman Melville. Exploration of the importance of context in interpretation. Study of how a concept for rationalizing human difference appears and adapts, fuses and fades away, relocates and is repurposed. How understanding of the particular situation of the concept, its context, changes our reading of the story.

ENGL 132 Aliens, Exiles, and Immigrants (3) Credit only granted for: ENGL132 or ENGL289Z. Formerly: ENGL289Z. Exploration of ideas, beliefs, and aspirations that immigrants carry from one nation to another. Different ways of understanding national and cultural identities, and ways the experiences of immigration have changed significantly over time. Readings examine historical and contemporary immigrant writing, including post-9/11 poetry and fiction; memoirs of nineteenth-century British emigrants to South Africa, Australia, and Canada; literature by emigrants from Asia, the Middle East, and Latin America now living in the United States; and writing by individuals displaced by war, famine, and political conflict. Politics of immigration and citizenship; historical and contemporary arguments for and against immigration and assimilation.

ENGL 134 The Rites of Discovery: Science, Law and Literature 1492 to 1992 (3) Credit only granted for: ENGL134 or ENGL289B. Formerly: ENGL289B. History of idea of "discovery" from sixteenth-century debate about European "rights of discovery" to 500th anniversary, in 1992, of Columbus' landfall in New World. Evolution of modern concept of discovery, both as part of history of science and in legal context of history of European colonialism and cultural encounter with Native peoples of Americas, Africa, and Asia. Exploration of primary and secondary sources relating to international law, science, and literature.

ENGL 140 American Fictions: Cross-Examining U.S. Literature, History, and Politics (3) Credit only granted for: ENGL140 or ENGL289Y. Formerly: ENGL289Y. Major works of American literature explored in relation to major texts and developments of U.S. history, culture and politics. Special attention to global contexts and complications of "American" literature and history. Key historical and political issues include human rights, democratic principles, independence, revolution, slavery, removal, immigration, free speech, labor rights, civil rights, feminism, environmentalism, economic globalization, technology and digital innovation, and the role literature and the humanities may play in fostering various forms of responsible citizenship.

ENGL 142 Literary Maryland (3) Credit only granted for: ENGL142 or ENGL289M. Formerly: ENGL289M. What does the literature of Maryland teach us about our state's past, present, and future? "Literary Maryland" explores this question by taking students on a tour of our state's prose, poetry, and drama from colonization to the present. In addition to reading fascinating writing and visiting interesting places, you'll learn how the Chesapeake was formed; why nobody sings the entire national anthem; and what led Baltimore to name its football team after a poem written by a Virginian.

ENGL 144 Breaking News: Contemporary Literature, Media and the State (3) Credit only granted for: ENGL144 or ENGL289X. Formerly: ENGL289X. How specific moments of social upheaval are portrayed in media and transformed into art. Developing skills of reading, writing, and interpretation by learning how to "decode" fiction, t.v., news, and films. Exploration of viewpoints not represented in mainstream media. Question dominant discourses and examine how narratives are fabricated. What does it mean to be "subject" to the State, and how does art subvert it? Multimedia component deals with war, terrorism, environment, human rights, biomedical research, geopolitics.

ENGL 150 Uncanny Technologies: Monsters, Droids, and Vampires (3) Credit only granted for: ENGL150 or ENGL289T. Formerly: ENGL289T. Explores dark, uncertain borders between human and nonhuman, natural and unnatural, life and death. What literature teaches about new technologies that seek to represent or replicate human experience. Examination of a series of nineteenth-century American, French, German, and British novels and stories from Frankenstein (1818) to Dracula (1897) featuring recently introduced media and inventions such as photographs, phonographs, automata, and motion pictures that are concerned, like works of literature, with recording and reproducing human consciousness and human body.

ENGL 152 What is Justice?: Literature and the Invention of Ethical Imagination (3) Credit only granted for: ENGL152 or ENGL289J. Formerly: ENGL289J. Exploration of literature's unique ability to animate human passions underlying ethical dilemmas. How literary texts shape understanding of justice; how plays, novels, and films define, critique, challenge, and even alter society's comprehension of equity and inequity, crime and punishment, pardon and torture, and ideas about civil liberties and human rights. Attention to how writers have described just and unjust within their historical moment; crucial role of imagination in formation of ethical citizens across time.

ENGL 181 English Grammar (1) Restriction: Must not have completed JOUR181 or ENGL181. Credit only granted for: ENGL181 or JOUR181. The basic structure of formal written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 201 Inventing Western Literature: Ancient and Medieval Traditions (3) Wide range of texts, genres, and themes from ancient and medieval Western traditions. Study of cultural, historical, and artistic forces shaping traditions, and the influence and relevance of those traditions to life in twenty-first century.

ENGL 202 Inventing Western Literature: Renaissance to Modern (3) Wide range of texts from the Renaissance to the 21st century. Themes and literary techniques in the evolution of Western literature. Print publication, industrialization, questioning of religious, political, intellectual, and cultural authority.

ENGL 206 Shakespeare (3) Credit only granted for: ENGL205, ENGL206, or ENGL289I. Formerly: ENGL205. Shakespeare's poems, history plays, comedies, and tragedies as investigations into language use, governance, sexuality, ethics, and mortality.

ENGL 211 English Literature: Beginnings to 1800 (3) Surveys medieval and early modern literary works written in England. Readings may include Beowulf, Chaucer, Spenser, Mary Wroth, Milton; eighteenth-century satire, drama, novels.

ENGL 212 English Literature: 1800 to the Present (3) Surveys the major literary movements of the period, from Romantic to Victorian to Modern. Such authors as Wordsworth, Keats, Bronte, Tennyson, Browning, Yeats, Joyce, Woolf.

ENGL 221 American Literature: Beginning to 1865 (3) Surveys American writing from the founding of the colonies through the Civil War. Authors such as Taylor, Cooper, Poe, Dickinson.

ENGL 222 American Literature: 1865 to Present (3) Surveys American writing from the Civil War through the Cold War. Authors such as Clemens, Frost, Hurston, Bellow.

ENGL 233 Introduction to Asian American Literature (3) Restriction: Must not have completed AAST233. Also offered as: AAST233. Credit only granted for: AAST233, AAST298L, or ENGL233. A survey of Asian American literatures with an emphasis on recurrent themes and historical context.

ENGL 234 African-American Literature and Culture (3) An exploration of the stories black authors tell about themselves, their communities, and the nation as informed by time and place, gender, sexuality, and class. African American perspective themes such as art, childhood, sexuality, marriage, alienation and mortality, as well as representations of slavery, Reconstruction, racial violence and the Nadir, legalized racism and segregation, black patriotism and black ex-patriots, the optimism of integration, and the prospects of a post-racial America.

ENGL 235 U.S. Latina/o Literature and Culture (3) Poetry, prose, and theater of Latina/o communities in the United States from origins in Spanish colonization of North America to ongoing development in the 21st century. How authors use literary form to gain insight into human experience, including mortality, religious belief, gender and sexuality, war and peace, family, language use, scientific inquiry, cultural tradition, ecology, and labor. How Latina/o literary traditions have shaped and been shaped by broader currents in American literature. Connections between Latina/o literature and social and artistic developments in other parts of the world, particularly Latin America and the Caribbean. Authors may include Alvar Nunez Cabeza de Vaca, Eulalia Perez, Juan Nepomuceno Seguin, Maria Amparo Ruiz

de Burton, Jose Marti, Arthur A. Schomburg, Jesus Colon, Julia de Burgos, Cesar Chavez, Ariel Dorfman, Gloria Anzaldua, Junot Diaz, and Cristina Garcia.

ENGL 240 Introduction to Fiction, Poetry, and Drama (3) Readings in the novel, short story, poetry and drama.

ENGL 241 What the Novel Does (3) An exploration of what the novel does that cannot be done by film, by television, by cell-phone screens, by any stream of images, or by textual excerpts pulled up for a quick read. The different ways of the novel, with particular focus on the process of thinking and the developed consciousness. The novel as a machine to think with and an irreplaceable model of complex human thought. Study of how thought is presented in radically different ways in novels that cross lines of class, gender, chronology, and nationality.

ENGL 243 What is Poetry? (3) An exploration of arguably the most complex, profound, and ubiquitous expression of human experience. Study through close reading of significant forms and conventions of Western poetic tradition. Poetry's roots in oral and folk traditions and connections to popular song forms.

ENGL 244 The Play's the Thing (3) Exploration of drama through a consideration of plot, narrative flow, analytical flow, staging, performance, manuscript and printing history, text and textual change over time, and interpretation. Plays will be approached as public attempts to understand what it means to be alive.

ENGL 245 Film Form and Culture (3) Restriction: Must not have completed FILM245. Also offered as: FILM245. Credit only granted for: CMLT214, CMLT245, ENGL245, or FILM245. Formerly: CMLT214. Introduction to film as art form and how films create meaning. Basic film terminology; fundamental principles of film form, film narrative, and film history. Examination of film technique and style over past one hundred years. Social and economic functions of film within broader institutional, economic, and cultural contexts.

ENGL 246 Introduction to the Short Story (3) A survey of the genre, with a focus on significant elements, such as plot, character, description, style, and theme. Readings will be drawn from a range of cultures and communities.

ENGL 250 Reading Women Writing (3) Also offered as: WMST255. Credit only granted for: ENGL250 or WMST255. Explores literary and cultural expressions by women and their receptions within a range of historical periods and genres. Topics such as what does a woman need in order to write, what role does gender play in the production, consumption, and interpretation of texts, and to what extent do women comprise a distinct literary subculture. Interpretation of texts will be guided by feminist and gender theory, ways of reading that have emerged as important to literary studies over the last four decades.

ENGL 255 Literature of Science and Technology (3) Credit only granted for: ENGL255 or ENGL278T. Formerly: ENGL278T. Examines science and technology through the lens of British and American literature, primarily between 1800 and the present. Readings from early natural and experimental philosophers of the Scientific Revolution and Enlightenment. How literary works represent the ethics of science and technology; beneficial developments of science, and also heavy toll of industrialization. Writers studied may include Francis Bacon, Mary Shelley, Charles Darwin, H.G. Wells, Albert Einstein, Aldous Huxley, Richard Feynman, Philip K. Dick, Octavia Butler, Michael Frayn, and Tom Stoppard.

ENGL 256 Fantasy Literature (3) How fantasy employs alternate forms of representation, such as the fantastical, estranging, or impossible, which other genres would not allow. Through novels, short stories, graphic novels, and film, traces fantasy's roots in mythology and folklore, then explores how modern texts build upon or challenge these origins. Examination of literary strategies texts use to represent the world through speculative modes. How to distinguish fantasy from, and relate it to, other genres such as science fiction, horror, fairly tales, and magical realism. Fantasy's investment in world-building, history, tradition, and categories of identity such as race, class, and gender. How fantasy, as a genre, form, and world-view, is well-suited to our contemporary reality.

ENGL 257 Children's Literature (3) Literature of the nineteenth through the twenty-first century concerned with, and written for, children and young adults. How such narratives speak to themes of changing social, religious, political, and personal identity. Through poetry, novels, graphic novels, and film, explores how children's tales encapsulate and reflect on human existence, while pushing boundaries of what constitutes "children's literature" and what exactly defines the "child." Considers questions of literary classification through investigation of political and religious issues, gender politics, animal rights, social justice, race, war, and what it means to "grow up."

ENGL 261 Recovering Oral Histories: Caribbean and Latin American Communities in the USA and Britain (3) Credit only granted for: ENGL261 or ENGL361. Project-based course to record oral histories of Caribbean American and Latin American communities in the Washington area. Interview and oral history techniques; recording and videotaping oral histories; transcribing and writing stories as oral histories.

ENGL 262 Introduction to the Hebrew Bible/Old Testament (3) Also offered as: JWST262. Credit only granted for: JWST262, HEBR223, or ENGL262. Formerly: HEBR223. An exploration of the origins and compositional history of biblical literature. Critical study of texts and socio-historical analysis of their background.

ENGL 265 Lesbian, Gay, Bisexual, and Transgender Literatures (3) Restriction: Must not have completed LGBT265. Also offered as: LGBT265. Credit only granted for: ENGL265 or LGBT265. Exploration of literary and cultural expressions of sexuality and gender. Study of a range of historical periods and literary genres, such as essay, poetry, novel, drama, film. Topics include sexual norms and dissidence, gender identity and expression, the relationship between aesthetic forms and sexual subjectivity. Interpretation of texts particularly through the lens of queer theory. Examination of how sex and gender intersect with other forms of difference, including race and class.

ENGL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ENGL 271 Writing Poems and Stories: An Introductory Workshop (3) Introduction to theory and practice of writing fiction and poetry. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 272 Writing Fiction: A Beginning Workshop (3) Introduction to theory and practice of writing fiction. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 273 Writing Poetry: A Beginning Workshop (3) Introduction to theory and practice of writing poetry. Emphasis on critical reading of literary models. Exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 274 Creative Writing Through The Eyes of African Americans: A Beginning Workshop (3) Restriction: Must not have completed ENGL278C, AASP298W, ENGL271, ENGL274, ENGL294, ENGL294N, or AASP274. Also offered as: AASP274. Credit only granted for: ENGL274, ENGL278C, ENGL294, ENGL294N, AASP274 or AASP298W. Formerly: ENGL278C. Introduction to theory and practice of writing fiction, drama and poetry, with an emphasis on African American literary models. Critical reading, exercises and workshop discussions with continual reference to modeling, drafting, and revising as necessary stages in a creative process.

ENGL 275 Writing to be Seen: Scriptwriting for Theatre, Film, and Television (3) Also offered as: ARHU275. Credit only granted for: ENGL278D, ENGL275, ARHU319B, or ARHU275. Formerly: ENGL278D; ARHU319B. Introduction to theory and practice of scriptwriting with opportunity to read, view, evaluate, write, and revise texts meant to be performed for spectators. Practice writing for the stage, film and television, with emphasis on critical reading of textual and visual literary models. Theory and scholarship teaching opportunities and advantages of each format. Application of scholarship to analysis and critique of plays and texts successful across two different formats. Examination of selected scripts, performances, and film and television clips as models for students' own creative work. Frequent writing exercises and use of workshop format.

ENGL 278 Special Topics in Literature (3) Repeatable to 9 credits if content differs.

ENGL 280 The English Language (3) Introduction to the structure of English and its historical development, with a focus on techniques of linguistic analysis. Major topics include the sound systems of English and its patterns of word formation and sentence structure, and the ways these have changed over time and vary around the world.

ENGL 281 Standard English Grammar, Usage, and Diction (3) The basic structure of written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 282 How Rhetoric Works: Persuasive Power and Strategies (3) Examines how persuasion functions and influences our lives and perception, focusing on a variety of contexts: business, politics, media, law, and entertainment. Students learn persuasive and argumentative principles to understand what rhetoric is, how it works, and what it does, and to apply the knowledge to produce effective communication appropriate for their purpose, audience, and context. A wide range of persuasive media, genres, and forms will be studied to help students sharpen how they interpret and practice persuasion.

ENGL 289 Special Topics in English (3) Repeatable to 12 credits if content differs. Additional information: This course satisfies the General Education I-Course requirement (SCIS). I-courses offered through the English Department.

ENGL 291 Writing, Revising, Persuading (3) Prerequisite: Must have satisfied Fundamental Studies Academic Writing requirement. Intermediate-level, writing-intensive course for students who have successfully satisfied the Fundamental Studies Academic Writing requirement but wish to hone skills in analyzing and producing rhetorically attuned, well-styled prose. Deeper study of rhetorical theory and its application to a wide variety of arguments and situations. Additional writing practice, techniques of revision, study of effect of stylistic choices. Topics may include argumentation theory, visual rhetoric, stylistic theory, and writing theory.

ENGL 292 Writing for Change (3) Prerequisite: Permission of ARHU-English department. Recommended: ENGL101. Restriction: Requires application and references. Service learning in collaboration with students at area high schools. Explores how writing can be a tool for social change. Participants serve as mentors, create a performance event concerning a pressing social issue, and compose reflections, literacy narratives, publicity materials, and a multimodal project. Focus on developing critical self-awareness.

ENGL 293 Writing in the Wireless World (3) Recommended: ENGL101. Credit only granted for: ENGL278Z or ENGL293. Formerly: ENGL278Z. A hands-on exploration of writing at the intersection of technology and rhetoric. Students will learn to read, analyze, and compose the kind of multimodal documents (combining text, image, and sound) that constitute communication in our digital world.

ENGL 294 Persuasion and Cleverness in Social Media (3) Prerequisite: Must have satisfied Fundamental Studies Academic Writing requirement. Exploration of various persuasive media encountered in daily life through the lens of rhetorical and critical theories. Principles of rhetoric and analysis of how persuasion functions across media. Invention of effective multimedia works appropriate to purpose, audience, and context. Concepts from cultural studies used to develop critical awareness about power and ideology and how they influence the way people produce and understand messages. By integration of technology, rhetoric, and cultural studies, students become more critically-rhetorically informed thinkers, authors, and audiences of arguments and culture in the digital age. Writing intensive course. No prior multimedia experience is expected.

ENGL 297 Introduction to Professional Writing (3) Prerequisite: ENGL101. Introduction to the rhetorical principles and professional practices of professional writing, particularly the research, writing, communication, analytical, and technological skills needed for the Professional Writing minor. How culture and technology relate to the work of professional writing; design principles and rhetorical moves; digital tools, research skills, and writing strategies of professional writers. Develops skills needed to publish a writing portfolio that showcases students' professional writing competencies and projects your professional writer identities.

ENGL 300 Writing about Literature (3) Prerequisite: Must have completed or be concurrently enrolled in ENGL301. For students who want to improve their academic writing skills, focusing in particular on literary analysis, argument, style, clarity and engagement with other points of view. Readings from literary texts in various genres and from critical essays. Especially useful to prepare for upper-level courses in English.

ENGL 301 Critical Methods in the Study of Literature (3) Restriction: Must be in English Language and Literature program; or must be in Secondary Educ: English Language Arts program. An introduction to the techniques of literary analysis and a brief survey of the most common approaches to literature.

ENGL 302 Medieval Literature in Translation (3) Surveys major works of English and continental Middle Ages. Readings may include romance, lyric and drama, Germanic epic, works of Dante, Chretien de Troyes, Jean de Meun, Christine de Pisan, Malory, English and continental mystics.

ENGL 304 The Major Works of Shakespeare (3) Restriction: Must not have completed ENGL403 or ENGL404. Representative early, middle, and later works, including comedies, tragedies, histories, and romances. Historical and cultural contexts.

ENGL 305 Shakespeare and His Contemporaries: An Introduction (3) Readings in Shakespeare and contemporaries such as Marlowe, Dekker, Middleton, Jonson, Webster, Chapman, Marston. Elizabethan and Jacobean theatrical and social contexts.

ENGL 310 Medieval and Renaissance British Literature (3) Detailed study of selected major medieval and Renaissance works written in England. Cultural attitudes and historical contexts. May include Beowulf, Anglo-Saxon lyric, drama, sonnets; works of women writers, Chaucer, Spenser, Sidney. Some readings in Middle English.

ENGL 311 British Literature from 1600 to 1800 (3) The culture of seventeenth and eighteenth-century Britain seen through detailed study of selected major texts. Drama, poetry, political writings, and early novels by men and women. Authors may include Donne, Milton, Jonson, Behn, Swift, Pope, Montagu, and Wollstonecraft.

ENGL 312 Romantic to Modern British Literature (3) Detailed study of selected major texts from the 19th and 20th centuries. Transitions from Romanticism to Victorian age to Modernism. Historical, social, literary contexts. Issues such as rise of democracy; industrial revolution; the "woman question"; revolutions in literary form. Authors might include Wordsworth, Austen, Dickens, Arnold, T.S. Eliot, and Woolf.

ENGL 313 American Literature (3) A detailed study of selected major texts of American literature from the 17th century to the 20th century. Issues such as race, gender, and regionalism. Authors such as Franklin, Hawthorne, Dickinson, Hemingway, and Morrison.

ENGL 317 African American Literature (3) Consideration of key texts in African American literature that explore the experiences of people of African descent in America from the mid-nineteenth century to the contemporary moment. Relationship between literary texts, historical events and cultural formations. Examines a range of texts and genres (autobiography, slave narrative, travel narrative, poetry, essays, fiction), and their contribution to national literary tradition.

ENGL 321 American Comics (3) Survey of the long and vibrant history of the American graphic novel, from its origins in newspapers, through the underground comix movement of the 1960s, to its present moment of cultural ascendency. Exploration of the representational possibilities of comics, the graphic novel, and graphic narrative more broadly as well as the history of its incorporation into high culture.

ENGL 327 The Suburbs in American Literature and Film (3) Explores through written expression and through cinema the diverse and changing world of US suburbia. Premised on two arguments: (1) the suburbs embody many of the contours and contradictions of American life; and (2) the suburbs are far more racially, ethnically, culturally, sexually, economically diverse than mass media suggests. Investigation via prose, poetry, drama, and cinema, as well as secondary sources in sociology, women's studies, ethnic studies, history, cultural studies, psychology, anthropology, and the history of science and technology.

ENGL 329 Special Topics in Film Studies (3) Prerequisite: ENGL245, FILM245, FILM283, or SLLC283; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Studies in various periods and genres of film.

ENGL 331 American Jewish Literature (3) Also offered as: JWST341. Credit only granted for: ENGL379L (Spring 2013), HONR229G (Spring 2008), JWST319T(Spring 2013), ENGL331, or JWST341. Formerly: ENGL379L and JWST319T. An exploration of the role played by literature in the

development of American Jewish ethnic identity. Primary materials include essays, poetry, plays, short stories, novels, films and music.

ENGL 332 Representing the Holocaust (3) Also offered as: JWST346. Credit only granted for: ENGL379J, JWST419I, ENGL332, or JWST346. Formerly: ENGL379J or JWST419I. Different perspectives on how the Holocaust should be represented. Examination of a wide range of texts including fiction, memoirs, critical essays, poems and films in different languages (in translation). Emphasis on the international and comparative nature of Holocaust literary studies and investigation into the propriety of literary representation of historical catastrophe. Consideration of our own role as readers serving as witnesses to an event that has marked itself indelibly in the aesthetic history of the twentieth century.

ENGL 334 The Bible as Literature (3) Credit only granted for: ENGL278M (Fall 2010), ENGL379J (Spring 2007), or HONR239Z (Fall 2005). The Bible as a major source of contemporary Western religious symbolism and culture. Exploration of how this literary legacy appears in our own cultural experience. Historical critical and literary critical method and theory introduced and applied to the texts.

ENGL 339 Native American Literature (3) Repeatable to 9 credits if content differs. Study of selected writers or particular themes or genres in Native American literatures.

ENGL 344 Nineteenth-Century Fiction (3) Major British, American, and other fiction writers of the nineteenth century studied in the context of the broad global, intellectual, and artistic interests of the century.

ENGL 345 Twentieth Century Poetry (3) Restriction: Must not have completed ENGL446 or ENGL445. Major British and American poets of the twentieth century.

ENGL 346 Twentieth Century Fiction (3) Major British, American, and other fiction writers of the twentieth century studied in the context of the broad global, intellectual, and artistic interests of the century.

ENGL 348 Literary Works by Women (3) Repeatable to 6 credits if content differs. Also offered as: WMST348. Credit only granted for: ENGL348 or WMST348. The context, form, style and meaning of literary works by women.

ENGL 349 Asian American Literatures (3) Repeatable to 9 credits if content differs. Study of selected writers, particular themes, or genres in Asian American literatures.

ENGL 352 Intermediate Fiction Workshop (3) Prerequisite: Minimum grade of A- in ENGL271; or minimum grade of A- in ENGL272; or permission of ARHU-English department. Credit only granted for: ENGL396 or ENGL352. Formerly: ENGL396. A class in the making of fiction. Intensive discussion of students' own fiction. Readings include both fiction and essays about fiction by practicing writers. Writing short critical papers, responding to works of fiction, and the fiction of colleagues, in-class writing exercises, intensive reading, and thinking about literature, in equal parts, and attendance at readings.

ENGL 353 Intermediate Poetry Workshop (3) Prerequisite: Minimum grade of A- in ENGL271; or minimum grade of A- in ENGL273; or permission of ARHU-English department. Credit only granted for: ENGL397 or ENGL353. Formerly: ENGL397. A class in the making of poetry. Intensive discussion of students' own poems. Readings in both poetry and essays about poetry by practicing poets. Writing short critical prose pieces, responding critically to colleagues' poems, in-class and outside writing exercises, memorization, and attendance at poetry readings.

ENGL 358 Special Topics in U.S. Latina/o Literature (3) Repeatable to 9 credits if content differs. Credit only granted for: ENGL358 or ENGL379E (Fall2006). Formerly: ENGL379E. Study of works by U.S. Latina/o writers.

ENGL 359 Special Topics in Lesbian, Gay, and Bisexual Literatures (3) Repeatable to 9 credits if content differs. Also offered as: LGBT359. Study of selected writers or particular themes in Lesbian, Gay, and Bisexual Literatures.

ENGL 360 African, Indian and Caribbean Writers (3) Selected writers from countries formerly colonies of Britain, France, Denmark, etc. Attention to ways regions have developed distinctive political and aesthetic values resulting from indigenous traditions and foreign influences.

ENGL 361 Recovering Oral Histories (3) Prerequisite: Students must have completed one course in English, Latin American Studies, or Education. Credit only granted for: ENGL261 or ENGL361. Service-learning course that gives students an opportunity to develop writing, interviewing, and communication skills as they contribute to the work of a community organization. In the classroom, students will reflect on the process and do background research to understand the particular context of the organization's work. In the field, students will interview (or have informal discussions with) young people helped by the organization in order to construct a narrative about their lives, their perceptions of themselves, and their experiences.

ENGL 362 Caribbean Literature in English (3) Also offered as ENGL362. Credit granted for ENGL362 or LASC348E. Political and literary traditions that intersect in the fiction, poetry, and drama written in English by Caribbean writers, primarily during the 20th century.

ENGL 368 Special Topics in the Literature of Africa and the African Diaspora (3) Repeatable to 9 credits if content differs. Comparisons among the literary traditions in Africa, the Caribbean, and North and South America.

ENGL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ENGL 370 Junior Honors Conference (1) Restriction: Candidacy for honors in English. Preparation for writing the senior honors project.

ENGL 373 Senior Honors Project (2) Prerequisite: ENGL370. Restriction: Must be in English Language and Literature program. Research and writing of senior honors project. Strongly recommended for students planning graduate work.

ENGL 375 J.R.R. Tolkien: Middle-earth and Beyond (3) Credit only granted for: ENGL375 or ENGL479D. Formerly: ENGL479D. Introduction to J.R.R. Tolkien's best-known texts, "The Hobbit" and "The Lord of the Rings," and beyond. Tolkien's source material, themes, and writing style; the mythology of Tolkien's world as found in his posthumously published works; exploration of some of Tolkien's lesser-known works, such as "Farmer Giles of Ham," Smith of Wooten Major," "The Fall of Arthur," "The Legend of Roverandom" and his essay on "Beowulf."

ENGL 376 American Science Fiction (3) Credit only granted for: ENGL379Y or ENGL376. Formerly: ENGL379Y. The history of American science fiction from its origins in pulp magazines of the 1920s to the present. Investigation of the changing history of science fiction across periods and subgenres, including Golden Age science fiction, New Wave science fiction, cyberpunk, and ecological science

fiction, and across media, including fiction, film, television, and comics. Charts the changing fortune of the genre, attempting to explain how it has moved from the margins of American culture to the mainstream.

ENGL 377 Medieval Myth and Modern Narrative (3) Formerly: ENGL361. Literary patterns characteristic of medieval myth, epic, and romance; their continuing vitality in modern works; and links between Medieval works like "The Prose Edda", "Beowulf", "The Morte D'Arthur", "The Volsunga Saga", and "Grettis Saga" and modern narratives like Tolkien's "The Lord of the Rings".

ENGL 379 Special Topics in Literature (3) Repeatable to 9 credits if content differs.

ENGL 381 MGA Legislative Seminar (3) Prerequisite: Permission of ARHU-English department. Classroom analysis component of the Maryland General Assembly internship program.

ENGL 383 The Uses of Language (3) Exploration of the social and political aspects of language use, including conversational behavior, persuasive uses of language, social dialects, and language and gender; analytical methods of pragmatics and discourse analysis.

ENGL 384 Concepts of Grammar (3) Introduction to the basic units of grammatical description; motivation for and nature of constituent structure and syntactic categories; fundamental grammatical concepts employed in the teaching and learning of languages.

ENGL 385 English Semantics (3) An introductory study of meaning in language and paralanguage. General semantics, kinesics, linguistic relativity and recent developments in linguistic semantics.

ENGL 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENGL 387 Visual Rhetoric (3) Credit only granted for: ENGL387 or ENGL488F (Spring 2013 only). Formerly: ENGL488F (Spring 2013 only). Investigation of the persuasive power of visuals based on how they construct and communicate their content and predispose viewers to an interpretation or attitude. "Iconic" images and other modes of visual representation including diagrams, graphs, and page or screen design. Most attention given to a grammar and rhetoric of visuals. Also the elements of images and their arrangement and consideration of historical and generic contexts and the "affordances" of various media. Not a course in "high art" or in video, TV, or film. Emphasis on visuals that accompany or replace verbal texts.

ENGL 388 Writing Internship (1-6) Prerequisite: Permission of ARHU-English department. Repeatable to 12 credits. Credit only granted for: ENGL380 or ENGL388. Formerly: ENGL380. Field work in English.

ENGL 390 Science Writing (3) Prerequisite: ENGL101; or students who have taken courses with comparable content may contact the department. Restriction: Must have earned a minimum of 60 credits; and junior standing or higher. Credit only granted for: ENGL390 or ENGL393S. Formerly: ENGL393S. Specifically designed for students interested in further study in the physical and biological sciences. Exposes students to the conventions of scientific prose in the genres of research articles and proposals. Students learn to accommodate scientific information to general audiences.

ENGL 391 Advanced Composition (3) Prerequisite: ENGL101; or students who have taken courses with comparable content may contact the department. Restriction: Must have earned a minimum of 60 credits. An advanced composition course which emphasizes constructing written arguments accommodated to real audiences.

ENGL 392 Legal Writing (3) Prerequisite: ENGL101; or students who have taken courses with comparable content may contact the department. Restriction: Must have earned a minimum of 60 credits. Conventions of legal writing and research. Students learn how to read and write about cases, statutes or other legislation; how to apply legal principles to fact scenarios; and how to present a written analysis for readers in the legal profession. Assignments may include the law-school application essay, case briefs, legal memos, and client letters.

ENGL 393 Technical Writing (3) Prerequisite: ENGL101; or students who have taken courses with comparable content may contact the department. Restriction: Must have earned a minimum of 60 credits. The writing of technical papers and reports.

ENGL 394 Business Writing (3) Prerequisite: ENGL101; or students who have taken courses with comparable content may contact the department. Restriction: Must have earned a minimum of 60 credits. Intensive practice in the forms of written communication common in the business world-letters, memos, short reports, and proposals. Principles of rhetoric and effective style.

ENGL 395 Writing for Health Professions (3) Prerequisite: ENGL101; or students who have taken courses with comparable content may contact the department. Restriction: Must have earned a minimum of 60 credits. Focus on accommodating technical material and empirical studies to lay audiences, and helping writers to achieve stylistic flexibility and correctness.

ENGL 398 Topics in Professional Writing (3) Prerequisite: ENGL101; or students who have taken courses with comparable content may contact the department. Restriction: Must have earned a minimum of 60 credits; and junior standing or higher. Repeatable to 6 credits if content differs. Professional writing courses that focus on the audiences, conventions, and genres of particular disciplines, professions, or organizations. Examples include writing for the arts, writing case studies and investigative reports, writing about economics, and writing for non-profit organizations.

ENGL 402 Chaucer (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Works read in Middle English. Readings may include Canterbury Tales, Troilus and Criseyde, dream visions, lyrics.

ENGL 403 Shakespeare: The Early Works (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Close study of selected works from the first half of Shakespeare's career. Generic issues of early histories, comedies, tragedies. Language, theme, dramatic technique, sources, and early modern English social-historical context.

ENGL 404 Shakespeare: The Later Works (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Close study of selected plays from the second half of Shakespeare's career. Generic issues of later tragedies, later comedies, romances. Language, theme, dramatic technique, sources, and early modern English social-historical context.

ENGL 407 Non-dramatic Literature of the Sixteenth Century (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Poetic and prose genres--utopia, epic, narrative,

lyric, sonnet, oration, epistle, sermon, apologia--in context of the literary and intellectual life of the sixteenth century. Writers such as More, Wyatt, Surrey, Sidney, and Spenser.

ENGL 408 Literature by Women Before 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Also offered as: WMST408. Credit only granted for: ENGL408 or WMST408. Selected writings by women in the medieval and early modern era.

ENGL 409 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ENGL 410 Edmund Spenser (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Selected works of Edmund Spenser in their literary, social, and historical contexts. Special attention to The Faerie Queene; also sonnets and lyric poetry.

ENGL 412 Literature of the Seventeenth Century, 1600-1660 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Works from early Stuart through Interregnum period. Major literary genres in historical contexts. Writers such as Donne, Jonson, Mary Wroth, Bacon, Browne, and Marvell.

ENGL 414 Milton (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Poetry and major prose in their social, political, and literary-historical contexts. Special attention to Paradise Lost. Other works may include Samson Agonistes and shorter poems.

ENGL 415 Literature of the Seventeenth Century, 1660-1700 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. English poetry, drama, fiction, and non-fiction written from the Restoration of Charles II to 1700. Attention to increasing literacy and publication and greater involvement by women in literary production. Authors include Milton, Dryden, Congreve, and Behn.

ENGL 416 Literature of the Eighteenth Century, 1700-1750 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British literary traditions, including the poetry of Pope, the prose of Swift, the correspondence of Montagu, the drama of Gay, and early novels by Defoe, Richardson, and Fielding.

ENGL 417 Literature of the Eighteenth Century, 1750-1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British poetry, drama, fiction, and nonfiction, emphasizing innovative forms and attitudes in genres such as the gothic novel and political writings, as well as more traditional works. Authors include Johnson, Burney, Sterne, Burke, and Wollstonecraft.

ENGL 418 Major British Writers before 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 419 Major British Writers after 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 420 English Romantic Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British poetry, drama, fiction, and criticism c.1790 to c.1830, a

period of dramatic social change and revolution in literature, philosophy, the arts, industry, and politics. Authors include Austen, Wordsworth, Coleridge, Keats, Byron, Percy, and Mary Shelley.

ENGL 422 English Victorian Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. A survey of English literature of the Victorian period. Writers may include Arnold, Browning, Tennyson, Dickens, George Eliot, Carlyle, Ruskin, Newman, and Wilde.

ENGL 425 Modern British Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Major Modernist writers in English prose and poetry since 1900. Such writers as Eliot, Larkin, Forster, Burgess, Durrell, Henry Green, Golding, Auden, Malcolm Lowry, Joyce, and Yeats.

ENGL 428 Seminar in Language and Literature (3) Restriction: Junior standing or higher; and must be in English Language and Literature program. Repeatable to 9 credits if content differs. Topics will vary each semester. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

ENGL 429 Independent Research in English (1-6) Prerequisite: ENGL301; and two English courses (excluding fundamental studies requirement); and permission of ARHU-English department. Restriction: Sophomore standing or higher. Repeatable to 9 credits if content differs. An advanced independent research project for qualified students, supervised by an English faculty member, on a topic not ordinarily covered in available courses.

ENGL 430 American Literature, Beginning to 1810, the Colonial and Federal Periods (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Puritanism, the Enlightenment, early Romanticism. Writers such as Bradstreet, Franklin, Brown.

ENGL 431 American Literature: 1810 to 1865, the American Renaissance (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Nationalism, Sentimentalism, Transcendentalism. Writers such as Douglass, Stowe, Melville.

ENGL 432 American Literature: 1865 to 1914, Realism and Naturalism (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Reconstruction, Realism, Naturalism. Representative writers such as Dickinson, James, Dreiser.

ENGL 433 American Literature: 1914 to the Present, the Modern Period (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Modernism, Postmodernism. Writers such as Stevens, Stein, Ellison.

ENGL 435 American Poetry: Beginning to the Present (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Selections of American poetry, from Bradstreet to contemporary free verse. Authors such as Whitman, Dickinson, Bishop, Hughes, Rich, and Frost.

ENGL 437 Contemporary American Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Prose, poetry, drama of living American writers. Current cultural and social issues.

ENGL 438 Major American Writers before 1865 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 439 Major American Writers after 1865 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 440 The Novel in America to 1914 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Survey of the American novel to World War I. Cultural and philosophical contexts; technical developments in the genre. Authors such as Melville, Wells Brown, James, Sedgwick, Chopin.

ENGL 441 The Novel in America Since 1914 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Survey of the American novel since World War I. Cultural and philosophical contexts, technical developments in the genre. Authors such as Hemingway, Cather, Faulkner, Anne Tyler, Morrison.

ENGL 444 Feminist Critical Theory (3) Prerequisite: WMST200, WMST250, or ENGL250. Also offered as: WMST444. Credit only granted for: ENGL444 or WMST444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

ENGL 445 Modern British and American Poetry (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The formation of Modernism in British and American poetry before 1930. Such poets as Yeats, Pound, H.D., Eliot, Langston Hughes, Moore, Stevens, and Williams.

ENGL 446 Post-Modern British and American Poetry (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. British and American poets from the 1930s to the present. Such poets as Auden, Williams, Plath, Brooks, Lowell, Wolcott, Ted Hughes, Bishop, Larkin, Jarrell, and Berryman.

ENGL 448 Literature by Women of Color (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Also offered as: WMST448. Credit only granted for: ENGL448 or WMST448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

ENGL 449 Selected Topics in U.S. Latina/o Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Credit only granted for: ENGL449 or ENGL479F. Study of selected works by U.S. Latina/o writers.

ENGL 450 Renaissance Drama I (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Drama of the sixteenth century, from Sir Thomas More's circle through Lyly, Greene, Marlowe, and their successors. Interludes, school drama, comedy and tragedy, professional theater. Influences of humanism, Protestantism, politics, and cultural change.

ENGL 451 Renaissance Drama II (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Drama in early decades of the seventeenth century. Playwrights include Jonson, Middleton, Marston, Webster, Beaumont and Fletcher. Tragedy, city comedy, tragicomedy, satire, masque. Pre-Civil War theatrical, political, and religious contexts.

ENGL 452 English Drama From 1660 to 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Restoration and eighteenth-century drama, with special

attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as dramatic and verbal wit.

ENGL 453 Literary Theory (3) Prerequisite: Two courses in literature; or permission of ARHU-English department. An in-depth study of literary and critical theory.

ENGL 454 Modern Drama (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The roots of European Modernism and its manifestation in the drama of the twentieth century. Such playwrights as Beckett, Churchill, Stoppard, Wilde, Chekhov, Ibsen, Brecht, O'Neill, Sartre, Anouilh, Williams, and Shaw.

ENGL 455 The Eighteenth-Century English Novel (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The origins and development of the British novel, from the late seventeenth century until the beginning of the nineteenth. Questions about what novels were, who wrote them, and who read them. Authors such as Behn, Defoe, Richardson, Fielding, Sterne, Smollett, Burney, Radcliffe, and Austen.

ENGL 456 The Nineteenth-Century English Novel (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Surveys major novels of the period. Attention to narrative form and realism; representations of gender and class; social contexts for reading, writing and publishing. Authors such as Austen, Bronte, Dickens, George Eliot, Trollope.

ENGL 457 The Modern Novel (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Modernism in the novel of the twentieth century. Such writers as Joyce, Lawrence, Murdoch, James, Forster, Faulkner, Hemingway, Fitzgerald, Ellison, Welty, Nabokov and Malamud.

ENGL 458 Literature by Women after 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Also offered as: WMST458. Credit only granted for: ENGL458 or WMST458. Selected writings by women after 1800.

ENGL 459 Selected Topics in Sexuality and Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Detailed study of sexuality as an aspect of literary and cultural expression.

ENGL 462 Folksong and Ballad (3) A cross-section of American folk and popular songs in their cultural contexts; artists from Bill Monroe to Robert Johnson.

ENGL 465 Theories of Sexuality and Literature (3) Prerequisite: Two lower-level English courses, at least one in literature; or permission of ARHU-English department. Also offered as: LGBT465. Credit only granted for: ENGL465 or LGBT465. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

ENGL 466 Arthurian Legend (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Development of Arthurian legend in English and continental literature from Middle Ages to twentieth century. All readings in modern English.

ENGL 467 Computer and Text (3) Prerequisite: One English course in literature; or permission of ARHU-English department. Examines electronic literature and other aspects of digital textuality. Topics

may include interactive fiction, hypertext, image and sound works, literary games and simulations. Emphasis on critical and theoretical approaches rather than design or programming.

ENGL 468 Selected Topics in Film Studies (3-9) Prerequisite: ENGL245, FILM245, FILM283, or SLLC283; or permission of ARHU-English department. Recommended: ENGL329, CMLT280, and ENGL245. Repeatable to 9 credits if content differs. Credit only granted for: ENGL468, ENGL479E-Spr 2008, ENGL479F-Spr 2009, ENGL479G-Fall 2008, or ENGL479M-Fall 2009/Fall 2010. Advanced studies in various periods and genres of film.

ENGL 470 African-American Literature: The Beginning to 1910 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Beginnings of African-American literature including origins of literary expression in folk tales, songs, and spirituals; slave narratives; pamphlets, essays and oratory; and the emergence of poetry and fiction. Emphasis is on interaction between literary forms and the salient political issues of the day.

ENGL 471 African-American Literature: 1910-1945 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Emergence of modernism in African-American writing including debates over the definition of unique African-American aesthetics, with emphasis on conditions surrounding the production of African-American literatures.

ENGL 472 African-American Literature: 1945 to Present (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Transformation of African-American literatures into modern and postmodern forms. Influenced by World War II and the Civil Rights and Black Power movements, this literature is characterized by conscious attempts to reconnect literary and folk forms, the emergence of women writers, and highly experimental fiction.

ENGL 475 Postmodern Literature (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. The origins and ongoing development of postmodern literature. Aspects of the "postmodern condition," such as the collapse of identity, the erasure of cultural and aesthetic boundaries, and the dissolution of life into textuality. The novel and other genres and media.

ENGL 478 Selected Topics in English and American Literature before 1800 (1-3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs.

ENGL 479 Selected Topics in English and American Literature after 1800 (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Repeatable to 9 credits if content differs.

ENGL 482 History of the English Language (3) Prerequisite: ENGL280 or LING200; or permission of ARHU-English department. Origin and development of the English language.

ENGL 483 American English (3) Prerequisite: LING200 or ENGL280; or permission of ARHU-English department. Origins and development of the various dialects of English spoken in the United States.

ENGL 484 Advanced English Grammar (3) Credit only granted for: ENGL484 or LING402. Advanced study of grammatical description.

ENGL 486 Introduction to Old English (3) Prerequisite: Two English courses in literature; or permission of ARHU-English department. Grammar, syntax, and phonology of Old English. Works read

in the original language. Poetry may include "Battle of Maldon," "Dream of the Rood," "Wanderer," "Seafarer," riddles; prose of Bede, Wulfstan, Aelfric, and other writers of Anglo-Saxon period in England.

ENGL 487 Foundations of Rhetoric (3) Credit only granted for: ENGL487 or COMM401. Principles and approaches to the theory, criticism, and historical understanding of rhetorical discourse.

ENGL 488 Topics in Advanced Writing (3) Repeatable to 9 credits if content differs. Different genres of technical and professional writing including proposal writing, computer documentation, technical report writing, instruction manuals, etc. Students will analyze models of a genre, produce their own versions, test, edit and revise them.

ENGL 489 Special Topics in Language and Rhetoric (3) Repeatable to 9 credits if content differs. Special topics in language and rhetoric, such as discourse analysis, semantics, or cognitive linguistics; comparative rhetoric and rhetorical theory, digital rhetorics, women's and minority rhetorics, or the history of rhetoric.

ENGL 492 Web Authoring (3) Prerequisite: Students must have satisfied Fundamental Studies Academic Writing requirement. Credit only granted for: ENGL488A or ENGL492. Formerly: ENGL488A. Workshop-based approach to web authoring from a rhetorical perspective, attending to issues of audience, purpose, medium, and context in design and development of web texts. How designers create meaning in web texts by structuring information, addressing messages, and composing arguments as a process of practical problem solving.

ENGL 493 Advanced Writing Theory and Practice (3) Recommended: Satisfactory completion of professional writing requirement. Restriction: Must have earned a minimum of 60 credits. Traditional and contemporary approaches to rhetoric and writing theory for advanced writing students who wish to develop their abilities to analyze and produce written texts in professional, public, digital, and/or advanced academic contexts.

ENGL 494 Editing and Document Design (3) Prerequisite: ENGL393 or ENGL391; or students who have taken courses with comparable content may contact the department. Principles of general editing for clarity, precision and correctness. Applications of the conventions of grammar, spelling, punctuation and usage, and organization for logic and accuracy. Working knowledge of the professional vocabulary of editing applied throughout the course.

ENGL 495 Independent Study in Honors (1-3) Prerequisite: ENGL373 and ENGL370. Restriction: Must be in English Language and Literature program; and candidacy for honors in English. Completion and presentation of the senior honors project.

ENGL 498 Advanced Fiction Workshop (3) Prerequisite: ENGL352; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Formerly: ENGL496. An advanced class in the making of fiction. Intensive discussion of students' own fiction. Readings include both fiction and essays about fiction by practicing writers. Writing short critical papers, responding to works of fiction, and to colleagues' fiction, in-class writing exercises, intensive reading, and thinking about literature, in equal parts, and attendance at readings.

ENGL 499 Advanced Poetry Workshop (3) Prerequisite: ENGL353; or permission of ARHU-English department. Repeatable to 9 credits if content differs. Formerly: ENGL497. An advanced class in the making of poetry. Intensive discussion of students' own poems. Readings include both poetry and essays

about poetry by practicing poets. Writing short critical prose pieces, responding critically to colleagues' poems, in-class and outside writing exercises, and attendance at poetry readings.

ENMA -- Engineering, Materials

ENMA 150 Materials of Civilization (3) The discovery of new materials has shaped history and built civilizations. The utilization, properties and production techniques of materials from the Bronze Age up through modern times and into the future will be traced. These materials are explained by considering their atomic structure, the binding forces between atoms and their arrangement, and how controlling the structure controls the materials properties.

ENMA 180 Materials Science and Engineering: The Field and the Future (1) Restriction: Must be in a major in ENGR-A. James Clark School of Engineering. Overview of the profession and the components of the Materials Science and Engineering program. Students will become familiar with the departmental faculty, areas of specialization within MSE, professional society student chapter, research opportunities and other resources available to students.

ENMA 181 Introduction to Nanotechnology (1) Restriction: Freshman standing. Seminar introducing nanotechnology and the conceptual and analytical challenges for developing future nanomaterials. Class activities and guest lectures cover the role of nanomaterials in materials science and engineering.

ENMA 300 Introduction to Materials Engineering (3) Prerequisite: ENES100; and permission of ENGR-Materials Science & Engineering department. Corequisite: MATH241. Recommended: PHYS261 and PHYS260. Also offered as: ENME382. Credit only granted for: ENMA300 or ENME382. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Materials selection in engineering applications.

ENMA 301 Modern Materials Engineering (3) Prerequisite: ENMA180; or students who have taken courses with comparable content may contact the department. And ENMA300; and permission of ENGR-Materials Science & Engineering department. Five topical areas will be presented, each leading up to specific applications that have recently come to market or are currently experiencing heavy research and development. The goal of each module will be to introduce the basic materials science principles necessary to understand these new areas.

ENMA 310 Materials Laboratory I: Structural Characterization (3) Prerequisite: ENMA300. Corequisite: ENMA460. Restriction: Junior standing or higher. Characterization of the structure of materials including both single crystal and polycrystalline materials. Laboratories will include x-ray and electron diffraction and microscopy.

ENMA 311 Materials Laboratory II: Electromagnetic Properties (3) Prerequisite: ENMA310 and ENMA460. Restriction: Junior standing or higher. Characterization of the electromagnetic properties of materials. Laboratories will include measurements of electrical and transport properties, index of refraction, and magnetic properties.

ENMA 312 Experimental Methods in Materials Science (3) Prerequisite: ENMA300. Corequisite: ENMA460. Restriction: Junior standing or higher. Introduction to experimental methods in materials characterization; synthesis of colloidal nanoparticles; X-ray diffraction and light scattering; optical microscopy; thermal conductivity and expansion; electrical measurements; heat capacity; computational materials design.

ENMA 362 Mechanical Properties (3) Prerequisite: ENMA300. Restriction: Junior standing or higher; and permission of ENGR-Materials Science & Engineering department. Overview of Mechanical Behavior, Elastic Behavior, Dislocations, Plastic Deformation, Strengthening of Crystalline Materials, Composite Materials, High Temperature Deformation of Crystalline Materials, Permanent Deformation of Noncrystalline Materials, Tensile Fracture at Low Temperatures, Engineering Aspects of Fracture, High Temperature Fracture, Fatigue, and Experimental determination of Mechanical Properties including Hardness of Metals and Strength of Metals, Polymers, Ceramics and Composites.

ENMA 386 Experiential Learning (3-6) Prerequisite: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENMA 400 Introduction to Atomistic Modeling in Materials (3) Prerequisite: ENMA300, MATH206, and ENMA460. Recommended: Basic knowledge in quantum mechanics (preferred but not required); basic knowledge in statistical mechanics (preferred but not required). Also offered as: ENMA600. Credit only granted for: ENMA489A, ENMA400, ENMA698A, or ENMA600. Formerly: ENMA489A. This is an introductory course designed to study atomistic modeling and simulation techniques used in materials research. This course covers the theories, methods, and applications of atomistic-scale modeling techniques in simulating, understanding, and predicting the properties of materials. Specific topics include: molecular statics using empirical force fields; quantum mechanical methods including density functional theory; molecular dynamics simulations; and Monte Carlo and kinetic Monte Carlo modeling.

ENMA 410 Materials for Energy I (3) Prerequisite: Minimum grade of C- in ENMA300; and permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA410 or ENMA489H. Formerly: ENMA 489H. The goal is to demonstrate the role of materials in solving one of the most critical socio-economic issues of our time, affordable and sustainable energy. There will be a discussion of U.S. and global energy and related environmental issues. Topics covered include: fuel cells and batteries (electrochemical energy conversion and storage); catalysts and membrane separations (fossil fuel and biomass energy conversion); and nuclear fuels.

ENMA 411 Materials for Energy II (3) Prerequisite: Minimum grade of C- in ENMA300; and permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA411 or ENMA489I. Formerly: ENMA489I. Demonstrates the role of materials in solving one of the most critical socio-economic issues of our time, affordable and sustainable energy. Materials for Energy is a two-part course based on material functionality; however, they are independent and neither is a prerequisite for the other. Materials for Energy II will focus on electrical, optical, thermal, and mechanically functional materials for energy devices. Solar cells, solar fuel, solar thermal, energy efficient lighting, building energy, thermoelectric and wind energy will be covered.

ENMA 412 Fundamentals of Photovoltaics (3) Prerequisite: ENMA300; and permission of ENGR-Materials Science & Engineering department. Overview of the fundamentals of photovoltaic devices, including principles of operation, with emphasis on the materials science aspects of the different technologies available.

ENMA 414 Introduction to Solid State Ionics (3) Prerequisite: ENMA300; and permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA414 or ENMA489W. Formerly: ENMA489W. Solid State Ionics is the study of point defects in crystalline and non-crystalline solids; defect equilibria and transport; the influence of chemical and electric potentials, interfaces, and association; and the application of ionically conducting solids in solid-state electrochemical transducer systems and devices.

ENMA 420 Intermediate Ceramics (3) Prerequisite: ENMA300; or permission of ENGR-Materials Science & Engineering department. To introduce basic concepts such as crystal chemistry, defect chemistry and ternary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 421 Design of Composites (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA421 or ENMA489A. Formerly: ENMA489A. Fundamentals of design, processing and selection composite materials for structural applications will be covered. The topics include a review of all classes of materials, an in-depth analysis of micro and macro mechanical behavior including interactions at the two-phase interfaces, modeling of composite morphologies for optimal microstructures, material aspects, cost considerations, processing methods including consideration of chemical reactions and stability of the interfaces, and materials selection considerations.

ENMA 422 Radiation Effects of Materials (3) Prerequisite: ENMA300; and permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA422 or ENMA489E. Formerly: ENMA489E. Ionizing radiation, radiation dosimetry and sensors, radiation processing, radiation effects on: polymers, metals, semiconductors, liquids, and gases. Radiation in advanced manufacturing, radiation-physical technology.

ENMA 423 Manufacturing with Polymers (3) Prerequisite: ENMA300; or permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA423 and ENMA489R. Formerly: ENMA489R. Study of the process of engineering design and development of polymer formulations. Knowledge of commodity polymers and their physical properties, ability to design an extrusion process, develop the economics of a polymer manufacturing process, develop a working knowledge of characterization techniques for determination of physical and mechanical properties of polymers.

ENMA 425 Introduction to Biomaterials (3) Recommended: ENMA300. Restriction: Permission of ENGR-Materials Science & Engineering department. Also offered as: BIOE453. Credit only granted for: BIOE453, ENMA489W, or ENMA425. Formerly: ENMA489W. Examination of materials used in humans and other biological systems in terms of the relationships between structure, fundamental properties and functional behavior. Replacement materials such as implants, assistive devices such as insulin pumps and pacemakers, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds, and biocompatibility will be covered.

ENMA 426 Reliability of Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA426 or ENMA489R. Formerly: ENMA489R. Students are taught the basic degradation mechanisms of materials, through the understanding of the physics, chemistry, mechanics of such mechanisms. Mechanical failure mechanisms concentrate on fatigue, and creep. Chemical failure mechanisms emphasize corrosion and oxidation. Physical mechanisms such as diffusion, electromigration, defects and defect migration, surface trapping mechanisms, charge creation and migration are also included.

ENMA 430 Nanosized Materials (3) Prerequisite: PHYS431 or ENMA460; and (CHEM231 or CHEM481). Credit only granted for: ENMA430 or ENMA489G. Formerly: ENMA489G. Practical aspects of nanoscale materials fabrication and utilization will be covered. It presents various approaches for the synthesis of nanoparticles, nanowires, and nanotubes, and discusses the unique properties observed in these structures and devices made with them.

ENMA 431 Nanomechanics of Biomaterials (3) Prerequisite: ENMA300; and permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA431 or ENMA489B. Formerly: ENMA489B. Focuses on the latest scientific developments and discoveries in the nanoscale structure and properties of biological materials. The course begins with introductory lectures on the various nanostructures of biomaterials, and their physiological roles under mechanical forces. General aspects of biopolymers, protein folding, and self-assembly are also covered. Next, a series of in-depth lectures are presented on the characterization methods of nanomechanical properties using single molecule techniques. Finally, current applications of nanobiomaterials in the area of molecular machines, molecular self-assembly, and nanoscaffold are discussed.

ENMA 440 Nano Plasma Processing of Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA440, ENMA489P, ENMA640, or ENMA698P. Formerly: ENMA489P. Sustaining mechanisms of plasmas are covered, especially low-pressure electrical gas discharges, fundamental plasma physics, sheath formation, electric and magnetic field effects, plasma-surface interactions in chemically reactive systems, plasma diagnostic techniques and selected industrial applications of low pressure plasmas.

ENMA 441 Characterization of Materials (3) Prerequisite: ENMA300. Restriction: Permission of ENGR-Materials Science & Engineering department; and senior standing. Credit only granted for: ENMA489T or ENMA441. Formerly: ENMA489T. Techniques to characterize the properties of materials whose characteristic dimensions range from nanometers to macroscopic. These include conventional crystalline and noncrystalline materials, with a special attention to materials of current technological interest. The course will include recent results from the scientific literature.

ENMA 442 Nanomaterials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA442 or ENMA489N. Formerly: ENMA489N. An exploration of materials whose structure places them at the boundary between small objects and large molecules. Having characteristic dimensions in the range of 1-100 nanometers, these materials are difficult to synthesize and characterize but are nevertheless at the forefront of science and technology in many fields. Also, the methods for creating, manipulating and measuring these materials with an emphasis on the current scientific literature will be covered. The novel properties and potential applications will also be addressed.

ENMA 443 Phontonic Materials, Devices and Reliability (3) Restriction: Permission of ENGR-Materials Science & Engineering department; and junior standing or higher. Credit only granted for: ENMA443 or ENMA489Z. Formerly: ENMA489Z. The course focuses on the understanding of the basic optical processes in semiconductors, dielectrics and organic materials. The application of such materials in systems composed of waveguides, light emitting diodes and lasers, as well as modulators is developed.

ENMA 445 Liquid Crystals and Structured Soft Materials (3) Prerequisite: MATH246, PHYS270, and PHYS271. Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA445 or ENMA489L. Formerly: ENMA489L. Elective course on the properties and behavior of liquid crystals and related soft materials, and their relationship to biomaterials and to applications.

ENMA 460 Physics of Solid Materials (3) Prerequisite: PHYS271, PHYS270, and MATH241. Restriction: Junior standing or higher; and must be in Engineering: Materials Science program. Also offered as: PHYS431. Credit only granted for: ENMA460 or PHYS431. Classes of materials; introduction to basic ideal and real materials' behavior including mechanical, electrical, thermal, magnetic and optical

responses of materials; importance of microstructure in behavior. One application of each property will be discussed in detail.

ENMA 461 Thermodynamics of Materials (3) Prerequisite: ENMA300. Restriction: Junior standing or higher. Thermodynamic aspects of materials; basic concepts and their application in design and processing of materials and systems. Topics include: energy, entropy, adiabatic and isothermal processes, internal and free energy, heat capacity, phase equilibria and surfaces and interfaces.

ENMA 462 Smart Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA462 or ENMA489B. Formerly: ENMA489B. A fundamental understanding will be provided as it relates to the following topics: ferroic materials, ferromagnets, ferroelectric materials, shape memory alloys and multiferroic materials that are simultaneously ferromagnetic and ferroelectric. The ferroic properties will be discussed on an atomic, nano- and micro-scales so that actual and potential applications on those scales become clear. Examples of those applications will be presented.

ENMA 463 Macroprocessing of Materials (3) Prerequisite: ENMA300. Restriction: Junior standing or higher. Processing of modern, bulk engineering materials. Raw materials, forming, firing, finishing and joining. More emphasis on metals and ceramics than polymers.

ENMA 464 Environmental Effects on Engineering Materials (3) Prerequisite: ENMA300. Or permission of ENGR-Materials Science & Engineering department; and permission of instructor. Introduction to the phenomena associated with the resistance of materials to damage under severe environmental conditions. Oxidation, corrosion, stress corrosion, corrosion fatigue and radiation damage are examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and criteria for selection of materials for use in radiation environments.

ENMA 465 Microprocessing Materials (3) Prerequisite: ENMA300. Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA363, ENMA489B, or ENMA465. Formerly: ENMA363. Micro and nanoscale processing of materials. Emphasis on thin film processing for advanced technologies.

ENMA 466 Advanced Materials Fabrication Laboratory (3) Prerequisite: ENMA465; and permission of ENGR-Materials Science & Engineering department. This course allows students an opportunity to study advanced materials systems in depth through a combination of lectures and hands-on laboratory experiments. Students will be trained in materials processing and characterization techniques. Each student will fabricate materials and devices in our state-of-the-art nanofabrication clean room facility (Fablab), as well as evaluate them using a variety of characterization techniques.

ENMA 471 Kinetics, Diffusion and Phase Transformations (3) Prerequisite: Must have completed or be concurrently enrolled in ENMA461. Restriction: Junior standing or higher; or permission of ENGR-Materials Science & Engineering department. Fundamentals of diffusion, the kinetics of reactions including nucleation and growth and phase transformations in materials.

ENMA 472 Technology and Design of Engineering Materials (3) Prerequisite: ENMA300. Relationship between properties of solids and their engineering applications. Criteria for the choice of materials for electronic, mechanical and chemical properties. Particular emphasis on the relationships between the structure of solids and their potential engineering applications.

ENMA 473 Engineering Using High Strength Metals and Alloys (3) Prerequisite: ENMA300; and permission of ENGR-Materials Science & Engineering department. This is a class focused on the materials engineering challenges of applying high strength metals and alloys to solutions. The extraordinary properties of these alloys derive from (1) highly metastable microstructures, (2) high strengths and melting points of the base metals, (3) complicated processing and fabrication procedures, and (4) their resulting complex behavior in extreme environments. This course will give you the knowledge base you need to select, apply and troubleshoot the performance of high strength metals and alloys in a variety of applications.

ENMA 474 Introduction to Computational Materials Science (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA474 or ENMA489A. Formerly: ENMA489A. This is an introductory course aiming for junior and senior undergraduate students to study atomistic modeling and simulation techniques that are used in materials science. This course covers the theories and applications of atomistic scale modeling techniques to simulate, understand, and predict the properties of materials. Topics include: molecular statics, quantum mechanical methods, molecular dynamics simulations and Monte Carlo simulations.

ENMA 475 Fundamentals of Diffraction Techniques in Materials Science (3) Prerequisite: MATH246, PHYS270, and PHYS271. Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA475 or ENMA489M. Formerly: ENMA489M. This course looks at the advanced methods of x-ray scattering/diffraction available thanks to the more powerful sources available to us. The availability of these sources enables us to study liquid crystals, polymers, nanomaterials, quasiorganized materials (including nano) and disordered materials.

ENMA 481 Introduction to Electronic and Optical Materials (3) Prerequisite: ENMA300; or students who have taken courses with comparable content may contact the department. Electronic, optical and magnetic properties of materials. Emphasis on materials for advanced optoelectronic and magnetic devices and the relationship between properties and the processing/fabrication conditions.

ENMA 482 Introduction to Electron Microscopy (3) Prerequisite: PHYS142, PHYS122, or PHYS260. Credit only granted for: ENMA482 or ENMA489J. Formerly: ENMA489J. An introduction of the basic principles of operation for modern electron microscopes. Details will be given on the construction of microscopes, their basic operation, and the types of questions that can be addressed with an electron microscope. Emphasis will be placed on a conceptual understanding of the underlying theories. Where appropriate, mathematical descriptions will be utilized. Upon completion of this course, students will be excepted to have a basic understanding sufficient to give interpretations of microscopy images and to suggest the correct tool or approach for certain research studies.

ENMA 484 Fundamentals of Finite Element Modeling (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Credit only granted for: ENMA484 or ENMA489F. Formerly: ENMA489F. A brief review of mechanical behavior of materials, introduction to Finite Element Modeling (FEM), and procedures for predicting mechanical behavior of materials by FEM using computer software (at present ANSYS). The FEM procedures include, setting up the model, mesh generation, data input and interpretation of the results.

ENMA 487 Capstone Preparation (1) Restriction: Must be in Engineering: Materials Science program; and senior standing; and permission of ENGR-Materials Science & Engineering department. In preparation for the senior level design course, students will do background research and develop white papers from which teams will form around short listed design projects. The projects should focus on a society, industry, military or technological based problem in Materials Science and Engineering leading

to a design and strategy to address the problem in the following course, ENMA 490. The course will include written and oral presentations of the white papers and team proposals.

ENMA 489 Selected Topics in Engineering Materials (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Repeatable to 12 credits if content differs. Selected topics of current importance in materials science and engineering.

ENMA 490 Materials Design (3) Restriction: Senior standing. Capstone design course. Students work in teams on projects evaluating a society or industry based materials problem and then design and evaluate a strategy to minimize or eliminate the problem; includes written and oral presentations.

ENMA 495 Polymeric Engineering Materials I (3) Prerequisite: ENMA300. Restriction: Permission of ENGR-Materials Science & Engineering department. Study of polymeric engineering materials and the relationship to structural type. Elasticity, viscoelasticity, anelasticity and plasticity of single and multiphase materials. Emphasis is on polymetric materials.

ENMA 499 Senior Laboratory Project (1-3) Restriction: Senior standing. Students work with a faculty member on an individual laboratory project in one or more of the areas of engineering materials. Students will design and carry out experiments, interpret data and prepare a comprehensive laboratory report.

ENME -- Engineering, Mechanical

ENME 201 Careers in Mechanical Engineering (1) The Mechanical Engineering Curriculum, Career Paths. Research areas in the Mechanical Engineering Department. The Mechanical Engineering Profession.

ENME 207 Fabrication and Machine Tool Practices for Engineering (2) Prerequisite: PHYS161. And ENME272; or students who have taken courses with comparable content may contact the department. Restriction: Permission of ENGR-Mechanical Engineering department. In order to make the best decisions in product design and development, it is important to understand the capabilities and limitations of different fabrication techniques. Students will learn to identify machine parts and functions, define machine shop terminology, calculate shop formulas and theories, execute machine operations, and apply proper measuring tools.

ENME 242 Building Products that Last - Failure is NOT an Option! (3) Have you ever wondered why airplanes crash or bridges collapse? Or even why your car is always in the shop or your computer screen goes blank? This course will let you in on the secret of why engineered products and structures fail and how designers are changing how they work to make products with higher reliability and longer life-spans. Even more, it will make you think about the many consequences that arise from failure ranging from direct replacement cost and legal liability to environmental impact and even changes in government policies and regulation

ENME 271 Introduction to Matlab (3) Prerequisite: ENES221. Develop the skills to generate readable, compact and verifiably correct MATLAB scripts and functions to obtain numerical solutions to a wide range of engineering models and to display the results with fully annotated graphics. Learn structured programming.

ENME 272 Introduction to Computer Aided Design (2) Prerequisite: ENES100; and must have completed or be concurrently enrolled in MATH141. Restriction: Permission of ENGR-Mechanical

Engineering department. Credit only granted for: ENME 414 or ENME272. Fundamentals of CAD, using solid modeling packages (Pro/E, SolidWorks, and Autodesk Inventor). Two and three dimensional drawing. Dimensioning and specifications. Introduction of CAD based analysis tools. Students will complete a design project.

ENME 331 Fluid Mechanics (3) Prerequisite: ENES232 and ENES221. Also offered as: BIOE331. Credit only granted for: BIOE331 or ENME331. Principles of fluid mechanics. Mass, momentum and energy conservation. Hydrostatics. Control volume analysis. Internal and external flow. Boundary layers. Modern measurement techniques. Computer analysis. Laboratory experiments.

ENME 332 Transfer Processes (3) Prerequisite: ENME331. The principles of heat transfer. Conduction in solids. Convection. Radiation. Modern measurement techniques. Computer analysis.

ENME 350 Electronics and Instrumentation I (3) Prerequisite: PHYS271 and PHYS270. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

ENME 351 Electronics and Instrumentation II (3) Prerequisite: PHYS271, ENME350, and PHYS270. Continuation of ENME 350. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

ENME 361 Vibration, Controls and Optimization I (3) Prerequisite: ENES220, ENES221, and MATH246; and (ENME271 or MATH206). Restriction: Must be in Engineering: Mechanical program. Fundamentals of vibration, controls and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical description of system response, system stability, control and optimization. Optimal design of mechanical systems.

ENME 371 Product Engineering and Manufacturing (3) Prerequisite: ENES221; and (ENME392 or STAT400). Restriction: Must be in Engineering: Mechanical program. Business aspects of engineering product development. Relationship of design and manufacturing. Product specification. Statistical process control. Design team development. The development process.

ENME 382 Introduction to Materials Engineering (3) Prerequisite: ENES100; and permission of ENGR-Mechanical Engineering department. Corequisite: MATH241. Recommended: PHYS261 and PHYS260. Also offered as: ENMA300. Credit only granted for: ENMA300 or ENME382. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Materials selection in engineering applications.

ENME 386 Experiential Learning (3-6) Prerequisite: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ENME 392 Statistical Methods for Product and Processes Development (3) Prerequisite: MATH241. Integrated statistical methodology for the improvement of products and processes in terms of performance, quality and cost. Designed experimentation. Statistical process control. Software application. Laboratory activities.

ENME 398 Honors Research Project (1-3)

ENME 400 Machine Design (3) Prerequisite: Must have completed or be concurrently enrolled in ENME361. Restriction: Permission of ENGR-Mechanical Engineering department. Design of mechanical elements and planar machines. Failure theories. Design of pressure vessels, joints, rotating elements, and transmission elements. Kinematic structures, graphical, analytical, and numerical analysis and synthesis of linkages, gear trains, and flywheels are covered.

ENME 408 Selected Topics in Engineering Design (3) Restriction: Must be in Engineering: Mechanical program; and senior standing. Or permission of ENGR-Mechanical Engineering department. Repeatable to 6 credits if content differs. Creativity and innovation in design. Generalized performance analysis, reliability and optimization as applied to the design of components and engineering systems. Use of computers in design of multivariable systems.

ENME 410 Design Optimization (3) Prerequisite: ENME271; or MATH206. Restriction: Permission of ENGR-Mechanical Engineering department; and junior or senior standing. Introduction to the formal process of design optimization, including analytical and computational methods. Step by step design optimization techniques. Design optimization concepts, necessary and sufficient optimality conditions and solution techniques. Solution evaluation and tradeoff exploration.

ENME 414 Computer-Aided Design (3) Prerequisite: MATH241; or students who have taken courses with comparable content may contact the department. Credit only granted for: ENME 414 or ENME272. Introduction to computer graphics. Plotting and drawing with computer software. Principles of writing interactive software. The applications of computer graphics in computer-aided design. Computer-aided design project.

ENME 416 Additive Manufacturing (3) Prerequisite: ENME331. And ENME272; or ENME414. Restriction: Permission of ENGR-Mechanical Engineering department. Develop a comprehensive understanding of fundamental additive manufacturing, 3D printing approaches, including: extrusion-based deposition, stereolithography, powder bed-based melting, and inkjet-based deposition. Cultivate a design for-additive manufacturing skillset for CAD and CAM methodologies to produce successful 3D prints. Fabricate 3D mechanical objects using a variety of 3D printing technologies on campus. Execute a design project that demonstrates how additive manufacturing technologies can overcome critical limitations of traditional manufacturing processes.

ENME 421 Engineering Design Ideation (3) Prerequisite: Must have completed or be concurrently enrolled in ENME371. Restriction: Junior standing or higher. Additional information: Ideally, this course should be taken prior to capstone design. Engineering Design Methods is a technical elective for engineering students who wish to improve their ability to produce design ideas (i.e., the ideation process) for further development into conceptual ideas. Ideation is the creative, idea generation activity that happens at the beginning of the conceptual design process. Ideation methods are often built around creativity improving strategies and are often designed for individual use prior to presenting the results in a team setting.

ENME 423 Modern Climate Control and Building Energy Design/Analysis (3) Prerequisite: ENES232. Corequisite: ENME332. Restriction: Permission of ENGR-Mechanical Engineering department. Fundamentals and design calculations of heat and moisture transfer in buildings; evaluation of cooling, heating and power requirements of buildings; building energy consumption simulations, use of alternative energy and energy conservation measures in buildings; fundamentals of fans/pumps and air/water distribution in buildings; introduction to refrigeration and energy systems for data centers and other mission-critical facilities.

ENME 424 Urban Microclimate and Energy (3) Prerequisite: Must have completed or be concurrently enrolled in ENME332. Recommended: ENME423. Restriction: Permission of ENGR-Mechanical Engineering department. Credit only granted for: ENME424 or ENME808I. Urban microclimate from the perspective of transient heat and mass transfer using building energy simulations for building clusters as well as LEED building certification criteria. The focus is on understanding building energy consumption and environmental impacts from the individual building scale to a neighborhood scale.

ENME 426 Production Management (3) Credit only granted for: BMGT385 or ENME426. The basic concepts and models needed to understand and design manufacturing systems, including the history of manufacturing, performance measures, queuing systems, variability, production planning and scheduling, lean manufacturing, and pull production control.

ENME 427 CSI Mechanical: Finding Reasons for Compromised Structural Integity (3) Prerequisite: ENES220 and ENME382. Restriction: Permission of ENGR-Mechanical Engineering department. Understanding the causes of product failures including the political, societal, economic, environmental, and ethical impact of these failures, and the strategies to avoid, postpone, or mitigate them. Students will be encouraged to combine concepts from engineering, natural sciences, social sciences, and the humanities to address these complex issues. Basics of failure analysis, forensics, and reliability engineering and the scientific fundamentals underlying the most common types of failure. Issues of legal liability. Methods for monitoring the existing condition of a structure.

ENME 430 Fundamentals of Nuclear Reactor Engineering (3) Prerequisite: MATH246. Restriction: Permission of ENGR-Mechanical Engineering department. Fundamental aspects of nuclear physics and nuclear engineering, including nuclear interactions; various types of radiation and their effects on materials and humans; and basic reactor physics topics, including simplified theory of reactor critically.

ENME 431 Nuclear Reactor Systems and Safety (3) Prerequisite: ENME430 and MATH246. Restriction: Permission of ENGR-Mechanical Engineering department. Also offered as: ENNU465. Credit only granted for: ENNU465 and ENME431. Engineering, material and thermal aspects of light water reactors, fast reactors, high temperature gas reactors, heavy water moderated reactors, breeder reactors, advanced reactors including GEN IV designs. Evolution of light water reactor safety and regulation in the US that has culminated in the current body of regulations.

ENME 432 Reactor and Radiation Measurements Laboratory (3) Prerequisite: ENME430 and MATH246. Restriction: Permission of ENGR-Mechanical Engineering department. Also offered as: ENNU440. Credit only granted for: ENNU440 or ENME432. Basics concepts of nuclear radiation and radiation detectors including types of radiation, radioactive decay, and interactions of radiation with matter.

ENME 436 Renewable Energy (3) Prerequisite: ENME331. Restriction: Must be in a major within the ENGR-Mechanical Engineering department. Credit only granted for: ENME489K or ENME436. Formerly: ENME489K. Fundamentals, design/analysis tools, and state of the art renewable energy technologies. Energy resources and global perspectives of current and future energy demand/consumption trends, followed by prime renewable energy technologies, including wind, solar, hydro, geothermal, and ocean thermal energy conversion. Economics of renewable energy, energy conservation opportunities, CO2 capture and storage, and thermal energy storage.

ENME 440 Applied Machine Learning for Engineering and Design (3) Prerequisite: ENME392; or permission of instructor. Restriction: Permission of ENGR-Mechanical Engineering department. Credit only granted for: ENME440, ENME808E, or ENME743. Learn how to apply techniques from Artificial

Intelligence and Machine Learning to solve engineering problems and design new products or systems. Design and build a personal or research project that demonstrates how computational learning algorithms can solve difficult tasks in areas you are interested in. Master how to interpret and transfer state-of-the-art techniques from computer science to practical engineering situations and make smart implementation decisions.

ENME 442 Information Security (3) Restriction: Must have Senior standing in engineering; and permission of ENGR-Mechanical Engineering department. Also offered as: ENRE684. Credit only granted for: ENRE648J, ENME442, ENRE684, or ENPM808E. The materials presented are divided into three major components: overview, detailed concepts and implementation techniques. The topics to be covered are: general security concerns and concepts from both a technical and management point of view, principles of security, architectures, access control and multi-level security, trojan horses, covert channels, trap doors, hardware security mechanism, security models, security kernels, formal specifications and verification, networks and distribution systems and risk analysis.

ENME 444 Assistive Robotics (3) Prerequisite: ENME351. Restriction: Permission of ENGR-Mechanical Engineering department. Fundamentals of assistive robots used in a wide varietyof ways to help humans with disabilities. Three application areas will be covered: (1) Rehabilitation robotics to recover motor function from neurologic injuries such as stroke, (2) Prosthetics to enable mobility function in amputees, and (3) Social robotics for cognitive impairment and developmental disorders such as autism. Theory behind different control systems employed by assistive robotics, as well as the mechanical design, sensors & actuators, and user interfaces behind representative robots in the respective areas. Guidelines for designing assistive robots. Ethical and regulatory considerations in the design of assistive robots.

ENME 445 Design for Reliability (3) Restriction: Junior standing or higher. Failure prevention, accident prevention, design requirements analysis, designing right the first time, high system reliability, software reliability, manufacturing defect prevention, life cycle costs reduction, design reviews, managing the design for reliability, design trustworthiness, product durability, and writing good specifications are covered.

ENME 454 Vehicle Dynamics (3) Corequisite: ENME361. Restriction: Permission of ENGR-Mechanical Engineering department. The fundamentals of passenger vehicle and light truck design and vehicle dynamics are covered. The engineering principles associated with acceleration, braking, handling, ride quality, aerodynamics, and tire mechanics are discussed, as well as suspension and steering design.

ENME 461 Control Systems Laboratory (3) Prerequisite: ENME351 and ENME361. Restriction: Permission of ENGR-Mechanical Engineering department. Credit only granted for: ENEE461 or ENME461. Students will design, implement, and test controllers for a variety of systems. This will enhance their understanding of feedback control familiarize them with the characteristics and limitations of real control devices. Students will also complete a small project. This will entail writing a proposal, purchasing parts for their controller, building the system, testing it, and writing a final report describing what they have done.

ENME 462 Vibrations, Controls, and Optimization II (3) Prerequisite: ENME351 and ENME361. Continuation of ENME 361. Fundamentals of vibration, controls, and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical descriptions of system response, system stability, control and optimization. Optimal design of mechanical systems.

ENME 464 Cost Analysis for Engineers (3) Prerequisite: ENME392; or students who have taken courses with comparable content may contact the department. Restriction: Permission of ENGR-Mechanical Engineering department. An introduction to the financial and cost analysis aspects of product engineering. Introduces key elements of traditional engineering economics including interest, present worth, depreciation, taxes, inflation, financial statement analysis, and return on investment. Provides an introduction to cost modeling as it applies to product manufacturing and support. Cost modeling topics will include: manufacturing cost analysis, life-cycle cost modeling (reliability and warranty), and cost of ownership.

ENME 465 Probability-Based Design (3) Prerequisite: MATH206 and ENME392. Restriction: Permission of ENGR-Mechanical Engineering department. Review of probabilistic distributions, introduction to pseudo-random number generation, and algorithms to produce probability distributions using Monte Carlo simulation via Matlab and other approaches to best design probabilistic engineering problems.

ENME 466 Lean Six Sigma (3) Prerequisite: ENME392, BMGT230, or STAT400; or students who have taken courses with comparable content may contact the department. This course intends to provide in-depth understanding of Lean Six Sigma and its Define - Mearsure - Analyze - Improve - Control (DMAIC) Breakthrough Improvement Strategy. The emphasis is placed on the DMAIC process which is reinforced via application of semester long corporate projects and case study analysis.

ENME 467 Engineering for Social Change (3) Restriction: Permission of ENGR-Mechanical Engineering department; and junior standing or higher. Critical analysis of issues at the intersection of engineering, philanthropy and social change. How engineering design, products and processes have impacted social change in the past and will do so in the future. Topics covered include energy, sustainability and climate change, autonomy, the digital future, low cost engineering, manufacturing, ethics and the impact of electronics on society. Faculty and external experts will engage with students on these topics. Students will award a significant amount of grant money to an organization involved in technology for social change

ENME 470 Finite Element Analysis (3) Restriction: Senior standing; and permission of ENGR-Mechanical Engineering department. Basic concepts of the theory of the finite element method. Applications in solid mechanics and heat transfer.

ENME 472 Integrated Product and Process Development (3) Prerequisite: ENME371. Integration of product development with the development process. Design strategies. Product architecture. Design for manufacturing. Selection of materials. Design for assembly.

ENME 473 Mechanical Design of Electronic Systems (3) Design considerations in the packaging of electronic systems. Production of circuit boards and design of electronic assemblies. Vibration, shock, fatigue and thermal considerations.

ENME 474 Design in Electronic Product Development (3) Prerequisite: ENME473. Merges technology, analysis, and design concepts into a single focused activity that results in the completed design of an electronic product. A set of product requirements are obtained from an industry partner, the students create a specification for the product, iterate the specification with the industry partner, then design and analyze the product. Students will get hands-on experience using real design implementation tools for requirements capture, tradeoff analysis, scheduling, physical design and verification. Issues associated with transferring of the design to manufacturing and selection of manufacturing facilities will also be addressed.

ENME 476 Microelectromechanical Systems (MEMS) I (3) Restriction: Senior standing. Credit only granted for: ENME476 or ENME489F. Formerly: ENME489F. Fundamentals of microelectromechanical systems (MEMS). Introduction to transducers and markets. MEMS fabrication processes and materials, including bulk micromachining, wet etching, dry etching, surface micromachining, sacrificial layers, film deposition, bonding, and non-traditional micromachining. Introduction to the relevant solid state physics, including crystal lattices, band structure, semiconductors, and doping. The laboratory covers safety, photolithography, profilometry, wet etching.

ENME 477 Microelectromechanical Systems (MEMS) II (3) Prerequisite: ENME476. Fabrication of devices designed in MEMS I, including everything from mask printing through training on state-of-the-art fabrication equipment through device testing. In-depth understanding of MEMS devices and technologies, such as mechanical and electromagnetic transducers, microfluidics, and chemical sensors.

ENME 481 Lab-on-a-Chip Microsystems (3) Restriction: Senior standing; and permission of ENGR-Mechanical Engineering department. Credit only granted for: ENME481, ENME808E, ENME740. Formerly: ENME489E. Fundamentals and application of lab-on-a-chip and microfluidic technologies. A broad view of the field of microfluidics, knowledge of relevant fabrication methods and analysis techniques, and an understanding of the coupled multi-domain phenomena that dominate the physics in these systems.

ENME 483 Physics of Turbulent Flow (3) Prerequisite: ENME331. Restriction: Permission of ENGR-Mechanical Engineering department. Also offered as: ENME656. Credit only granted for: ENME483 or ENME656. Specific problems of turbulent flow including automobile and truck aerodynamics and canonical flows including pipes, jets and boundary layers that are measured and simulated to gain basic understanding of turbulence. A goal of the course is to impart the necessary background for students to be able to critically assess and most effectively employ the turbulent flow prediction codes (e.g. Fluent) that are a mainstay of how turbulence is analyzed in modern industries.

ENME 484 Analysis of Turbulent Flow (3) Prerequisite: ENME331. Restriction: Permission of ENGR-Mechanical Engineering department. Also offered as: ENME657. Credit only granted for: ENME484 or ENME657. Relentless growth in the speed and size of supercomputers has encouraged the ever expanding use of numerical simulation in the practice of fluids engineering. For the flow past ground vehicles, in the urban grid, re-entering rockets, helicopters landing on ships at sea and countless other examples, the flow is turbulent, and simulation is becoming or will one day become the methodology of choice in analyzing and designing such technologies. The goal of this course is to give an introduction to the analysis of turbulent flow via simulation and the modeling that is used in its development. Among the questions to be considered: What can one hope to learn from flow simulation? What are the strengths of the approach and what obstacles inhibit its application? What kind of physical considerations are required in setting up simulations? How does one analyze the results of a simulation?

ENME 486 Computational Modeling, Simulation, and Interactive Visualization (3) Restriction: Senior standing; and permission of ENGR-Mechanical Engineering department. Creation of interactive graphic displays from the numerical simulation of mechanical engineering models. Brief description of each model provided, along with varied parameters to explore models' characteristics. Conclusions drawn from use of each interactive graphic. Mathematica language introduced and interwoven with the numerical simulation of the models, which will include: robotics and mechanisms, static response of beams, control systems, measurement systems, fluid flow, vibrations, geometric modeling, finite element analysis, and nonlinear phenomena.

ENME 488 Special Problems (3) Restriction: Permission of ENGR-Mechanical Engineering department. Advanced problems in mechanical engineering with special emphasis on mathematical and experimental methods.

ENME 489 Special Topics in Mechanical Engineering (3) Restriction: Permission of ENGR-Mechanical Engineering department. Repeatable to 6 credits. Selected topics of current importance in mechanical engineering.

ENNU -- Engineering, Nuclear

ENNU 386 Experiential Learning (3-6) Restriction: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and junior standing or higher.

ENNU 398 Honors Research Project (1-3)

ENNU 468 Research (2-3) Restriction: Permission of instructor; and permission of ENGR-Materials Science & Engineering department. Repeatable to 6 credits. Investigation of a research project under the direction of one of the staff members. Comprehensive reports are required.

ENNU 489 Special Topics in Nuclear Engineering (3) Restriction: Permission of ENGR-Materials Science & Engineering department. Repeatable to 6 credits if content differs. Selected topics of current importance in nuclear engineering.

ENRE -- Reliability Engineering

ENRE 447 Fundamentals of Reliability Engineering (3) Credit only granted for: ENRE445 or ENRE447. Formerly: ENRE445. Topics covered include: fundamental understanding of how things fail, probabilistic models to represent failure phenomena, life-models for non-repairable items, reliability data collection and analysis, software reliability models, and human reliability models.

ENRE 489 Special Topics in Reliability Engineering (3) Prerequisite: Permission of ENGR-Mechanical Engineering department. Repeatable to 6 credits if content differs. Selected topics of current importance in reliability engineering.

ENSP -- Environmental Science and Policy

ENSP 101 Introduction to Environmental Science (3) One of two required courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on scientific ways of knowing; the systems, cycles, flows, and interfaces that characterize the atmosphere, lithosphere, hydrosphere, and biosphere; the analysis of human impacts on these systems; and the nature of scientific uncertainty and methods of quantifying environmental processes.

ENSP 102 Introduction to Environmental Policy (3) Additional information: May be taken before or after ENSP101. Second of two courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on the process of formulating, implementing, and evaluating policy responses to environmental problems, with particular attention to policy

controversies related to scientific uncertainty, risk assessment, the valuation of nature, and distributional equity. May be taken before or after ENSP101.

ENSP 305 Applied Quantitative Methods in Environmental Science and Policy (3) Prerequisite: BIOM301, ECON321, GEOG306, PSYC200, or SOCY201; and (ENSP101 and ENSP102). And MATH120, MATH130, or MATH140; or must have completed MATH220. Restriction: Must be in a major in AGNR-Dean-Environmental Science & Policy Program; or permission of AGNR-Dean-Environmental Science & Policy Program. Credit only granted for: ENSP305 or AREC382. Additional information: Applied topics covered in this course will supplement coursework in introductory statistics and mathematics; this course is not intended for students with significant previous advanced data analysis or statistical experience. Intended for students interested in pursuing career or graduate research opportunities that will include management of environmental databases, detailed analysis of environmental data, and/or application of predictive environmental models. Students will learn necessary skills to manage and analyze environmental data through hands-on training in commonly used software and a series of topical case studies. Data analysis and data management will be taught using publicly available real-world environmental data sets.

ENSP 330 Introduction to Environmental Law (3) Prerequisite: Permission of AGNR-Dean-Environmental Science & Policy Program. Recommended: ENSP101; and ENSP102. Restriction: Junior standing or higher. Credit only granted for: ENSP330 or ENSP399A. Formerly: ENSP399A. An overview of environmental law, from its common law roots to its role in the modern regulatory state, including an examination of major federal environment statutes and the policy debates inherent in them. Other areas covered include civil and criminal enforcement, standing to sue, land use control, and regulatory takings.

ENSP 340 Water: Science, Ethics, and Policy (3) Prerequisite: ENSP101 and ENSP102. Restriction: Must have earned a minimum of 60 credits; and permission of instructor. Credit only granted for: ENSP340 or ENSP399B. Formerly: ENSP399B. Exploration of the science, policy, and ethical aspects of water resource protection and management. Focus on water pollution, water availability, ecosystems, and sustainability

ENSP 342 Environmental Threats to Oceans and Coasts: Towards an Integrated Policy Response (3) Prerequisite: ENSP101 and ENSP102. Restriction: Must have earned a minimum of 60 credits; and permission of Environmental Science and Policy program. Credit only granted for: ENSP399A or ENSP342. Formerly: ENSP399A. An interdisciplinary study of the challenges of maintaining the health and vitality of oceans and coasts in the face of climate change, extreme weather, and other threats including pollution, and oil and gas development. Exploration of four broad themes: resource management, conservation and stewardship, pollution, and coastal zone management. Also, an analysis of current efforts to integrate these themes through ecosystem-based management; marine spatial planning; and related policy responses.

ENSP 350 Energy Resources: Science and Policy in the 21st Century (3) Prerequisite: ENSP101 and ENSP102. Restriction: Must have earned a minimum of 60 credits; and permission of AGNR-Dean-Environmental Science & Policy Program. Credit only granted for: ENST405, ENSP350, ENST605, or MEES698Z. Energy resource production and consumption, including historical context, current trends in the U.S. and globally, and social and environmental implications. Includes fuel-source formation, history of use, modern trends in consumption, production, pricing and trade, reserves and resources, environmental and social impacts, future outlook and potential new technologies related to energy efficiency and conservation.

ENSP 386 Internship (3-6) Restriction: Must have internship proposal approved by the concentration advisor, the director of ENSP and the student's internship sponsor.

ENSP 399 Special Topics in Environmental Science and Policy (1-3) Restriction: Must be in Environmental Science and Policy program; or permission of AGNR-Dean-Environmental Science & Policy Program. Repeatable to 12 credits if content differs. A substantive and specialized examination of contemporary issues in environmental science or policy.

ENSP 400 Capstone in Environmental Science and Policy (3) Prerequisite: ENSP101; and ENSP102. Restriction: Senior standing; or permission of the Director of ENSP. And must be in Environmental Science and Policy program. Integration of physical, biological, and social sciences with applications to environmental science and policy. Problem-solving and multi-disciplinary case study evaluations pertinent to contemporary and future issues related to the environment.

ENSP 499 Honors Thesis Research (1-6) Restriction: Must be in the ENSP Honors program; and permission of AGNR-Dean-Environmental Science & Policy Program. Repeatable to 6 credits. Individual research, thesis, and oral defense. The research project will be conducted under the supervision of a faculty member.

ENST -- Environmental Science and Technology

ENST 100 International Crop Production-Issues and Challenges in the 21st Century (3) Credit only granted for: ENST100 or NRSC100. Formerly: NRSC100. Examines the role of crop production in elevating humans out of poverty in developing countries. It will introduce students to the basic principles of plant and soil science underlying the international production of food crops and world food security. The role of multinational agencies such as the World Bank in the promotion of sustainable crop production using environmentally-sound technologies will also be discussed.

ENST 140 Sustainability and History: The Maryland Experience (3) Examines the changing nature of concern over sustainability through the environmental history of the state of Maryland. The historical approach, supplemented by discussion of the basic scientific processes underlying ecosystem functions and human impacts on the environment, reveals both enduring and changing qualities of the search for sustainable patterns of living, beginning before 17th century European contact and continuing on into the environmental concerns of our own time.

ENST 200 Fundamentals of Soil Science (4) Corequisite: CHEM131 and CHEM132; or permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST200 or NRSC200. Formerly: NRSC200. Study and management of soils as natural bodies, media for plant growth, and ecosystem components. Morphology, composition, formation, and conservation of soils. Chemical, biological, and physical properties are discussed in relation to the production of plants, the functioning of hydrologic and nutrient cycles, the protection of environmental quality, and engineering uses of soils.

ENST 214 Introduction to Fish and Wildlife Sciences (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. Lectures, discussion, and readings in social, biological, and human dimension issues facing fisheries and wildlife biologists and natural resource managers in the United States. Coverage will include history and philosophical discussions of fish and wildlife sciences; conservation and management; principles of community, habitat, and animal ecology and management; and interrelations of wildlife, fish, and forestry.

ENST 233 Introduction to Environmental Health (3) How humans are affected by the quality of our air, water, soil, and food supply as well as how human activities altered these survival necessities are examined. Students will learn how the evolution and prosperity of human populations have resulted in degradation of our environment and the impact of environmental degradation on the health of people.

ENST 281 Computer Aided Design in Ecology (3) Restriction: Must be in Environmental Sci & Tech program. Basics of Computer Aided Drawing (CAD) applied to design of constructed ecosystems. Introduction to dynamic ecosystem modeling with iconographic simulation software. Course will spend 6 weeks on CAD and 8 weeks on modeling. Use of campus stormwater wetland as case study.

ENST 301 Field Soil Morphology I (1) Restriction: Permission of AGNR-Environmental Science & Technology department. Formerly: ENST308. This is a field-oriented course that introduces students to the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.

ENST 302 Field Soil Morphology II (1) Prerequisite: ENST301. Restriction: Permission of AGNR-Environmental Science & Technology department. Formerly: ENST308. This is the second field-oriented course in a three course sequence that provides intermediate training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.

ENST 303 Field Soil Morphology III (1) Prerequisite: ENST302. Restriction: Permission of AGNR-Environmental Science & Technology department. Formerly: ENST308. This is the third field-oriented course in a three course sequence that provides intermediate training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the Regional Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field.

ENST 309 Advanced Field Soil Morphology (1) Prerequisite: ENST301. Restriction: Permission of AGNR-Environmental Science & Technology department. Repeatable to 3 credits if content differs. This is a field-oriented course that provides advanced training for students in the techniques used to (1) describe soil morphology, and site and profile characteristics, (2) make land use interpretations based on soil characteristics, and (3) classify soils. This class is designed to prepare students for the National Collegiate Soil Judging Contest and for students to gain experience in the description and interpretation of soils in the field. Students will be exposed to a variety of soil landscapes and geology from outside of the northeastern U.S.

ENST 314 Fisheries Management and Sustainability (3) Prerequisite: BSCI160 and BSCI161; or BSCI106. Or ENST214; and 1 course from MATH113-499 course range. Or permission of AGNR-Environmental Science & Technology department. A detailed look at the ecology, management, and sustainability of fisheries resources. Concepts on human and ecological dimensions are emphasized.

ENST 333 Ecosystem Health and Protection (3) Prerequisite: ENST233. Restriction: Must be in one of the following programs (Environmental Sci & Tech: Ecological Tech Design; Environmental Sci & Tech: Environmental Health; Environmental Sci & Tech: Soil & Watershed Science; Environmental Sci &

Tech: Natural Resources Mgmt; Environmental Sci & Tech). Credit only granted for: ENST499A or ENST333. Formerly: ENST499A. Discussion of the philosophies, principles, and practices for assessing ecosystem health with emphasis on an ecosystem perspective rather than a human health perspective. Degradation associated with human activities will be emphasized. Topics will range from local to regional to global issues, including a discussion on global warming and its possible impacts on ecosystems. Concepts will be clarified using case histories from the Chesapeake Bay watershed.

ENST 334 Environmental Toxicology (3) Prerequisite: CHEM131, CHEM132, and BSCI207; or permission of AGNR-Environmental Science & Technology department. Concepts and case histories in ecotoxicology. Emphasis on origin and variety of environmental pollutants, routes of biological exposure, modes of toxicological action and effects on individual organisms, populations and ecosystems. Ecotoxicological issues in the Chesapeake Bay will be used as examples.

ENST 360 Ecosystem Ecology (4) Prerequisite: BSCI160 and BSCI161; or BSCI106. Restriction: Must be in one of the following programs (Environmental Sci & Tech: Ecological Tech Design; Environmental Sci & Tech: Environmental Health; Environmental Sci & Tech: Soil & Watershed Science; Environmental Sci & Tech: Natural Resources Mgmt; Environmental Sci & Tech). The study of ecology has a long and interesting history, from early society's efforts to understand and alter their environment as a matter of survival to the challenges the modern world is facing that are global in scale. Through the course text, distributed supplemental chapter readings and an understanding of the scientific literature, this course will cover the essential concepts and principles of ecosystem ecology as well as its history and past and present controversies. Several of the basic methods and tools of field research and the applied management of ecosystems will be discussed and demonstrated with several field excursions in the natural environs of the DC area. Central to this course will be the understanding that modern human society is an integral part of nature, with the power to impact and influence elements of the natural world at multiple scales. An analysis of policy implications for the biosphere will be discussed.

ENST 373 Natural History of the Chesapeake Bay (3) Also offered as: BSCI373. Credit only granted for: BSCI373, ENST373, or ENST499G. Formerly: ENST499G. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.

ENST 388 Honors Thesis Research (3-6) Repeatable to 6 credits if content differs. Credit only granted for: NRMT388, NRSC388, or ENST388. Formerly: NRSC388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

ENST 389 Internship (3) Restriction: Must be in Environmental Sci & Tech program. Repeatable to 6 credits if content differs. Formerly: NRSC389 and NRMT389. Credit will be granted for practical work carried out by students placed in work environment related to their stated career goals. Students must do an in-depth study in some portion of the work experience and produce a special project or report related to this study. A student work log is also recommended. An evaluation from the external supervisor of the project will be required. Credit arranged with supervising faculty member.

ENST 404 Ecological and Natural Resources Ethics (3) Prerequisite: ENST214 and ENST360. Recommended: ENST314, ENST410, and ENST460. Restriction: Senior standing or higher. Also offered as: ENST604. Credit only granted for: ENST604 or ENST404. Bridges science and management with ethical theory and concepts to help scientists, regulators, and managers understand how to deal with potential ethical dilemmas that arise in natural resource and environmental management implementation and policy development.

ENST 405 Energy and Environment (3) Prerequisite: MATH140 or MATH120; or must have completed MATH220. Restriction: Junior standing or higher. And must be in Environmental Sci & Tech program; or must be in Environmental Sci & Tech: Ecological Tech Design program; or must be in Environmental Sci & Tech: Environmental Health program; or must be in Environmental Sci & Tech: Soil & Watershed Science program; or must be in Environmental Sci & Tech: Natural Resources Mgmt program. Also offered as: ENST605. Credit only granted for: ENST405, ENSP350, ENST605, NRMT489Z, or MEES698Z. Formerly: NRMT489Z. Introduction to the role of energy in environmental and human-dominated systems. Discussion of the historical and modern production and consumption of energy. Introduction to energy systems computer simulation and energy auditing.

ENST 406 Applied Forestry Practices (3) Prerequisite: ENST200. And ENST360; or PLSC471. Also offered as: PLSC475. Credit only granted for: ENST406 or PLSC475. Focuses on the applied dynamics of a set of forest practices such as management, silviculture, measurement and inventory, preparation of a management plan, etc, within the urban/rural interface. Several field trips are included to gain hands-on experience.

ENST 410 Ecosystem Services: An Integrated Analysis (3) Prerequisite: ENST360 or BSCI361; or permission of instructor. Restriction: Must be in one of the following programs (Environmental Sci & Tech: Ecological Tech Design; Environmental Sci & Tech; Environmental Sci & Tech: Natural Resources Mgmt; Environmental Sci & Tech: Soil & Watershed Science; Environmental Sci & Tech: Environmental Health). The importance of our ecosystems and the services they provide will be discussed. Basic principles used to analyze ecosystem services will be discussed and applied using case studies & field exercises. Forestland, wetlands and our marine resources are increasingly recognized for their ecosystem services provided to society, to include clean air and water, wildlife habitat, biodiversity, carbon storage and pollination services. This course will prepare students to deal with the complex issues involved in understanding those and other ecosystem services and their importance to society and environmental sustainability. Slowly, new markets are emerging for these services. Students will analyze the ecological, policy and financial dimensions of enhancing, restoring, and sustaining ecosystem services. New and on-going government programs and private business ventures will be discussed.

ENST 411 Principles of Soil Fertility (3) Prerequisite: ENST200; or students who have taken courses with comparable content may contact the department. Also offered as: ENST611. Credit only granted for: ENST411 or NRSC411. Formerly: NRSC411. Soil factors affecting plant growth and quality with emphasis on the bio-availability of mineral nutrients. The management of soil systems to enhance plant growth by means of crop rotations, microbial activities, and use of organic and inorganic amendments.

ENST 414 Soil Morphology, Genesis and Classification (4) Prerequisite: ENST200. Credit only granted for: ENST414 or NRSC414. Formerly: NRSC414. Processes and factors of soil genesis. Taxonomy of soils of the world by U.S. System. Soil morphological characteristics, composition, classification, survey and field trips to examine and describe soils.

ENST 415 Renewable Energy (3) Prerequisite: CHEM131, PHYS121, and MATH113; or permission of AGNR-Environmental Science & Technology department. Restriction: Must be in a major within AGNR-Environmental Science & Technology department. An overview of renewable energy technologies and their current applications. Emphasis will be placed on technological readiness, efficiency and sustainability of renewable energy alternatives. Technologies include solar thermal, photovoltaics, biodiesel, ethanol, anaerobic digestion, wind, hydroelectric, and microbial fuel cells.

ENST 417 Soil Hydrology and Physics (3) Prerequisite: ENST200; and (MATH113 or MATH115). Or permission of instructor. Credit only granted for: ENST417 or NRSC417. Formerly: NRSC417. A study

of soil water interactions: the hydrologic cycle; the unique properties of water and soil; the soil components and their interactions; the field water cycle; transport processes involving water, heat and solutes; human effects on soil and groundwater; as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.

ENST 421 Soil Chemistry (4) Prerequisite: ENST200. Credit only granted for: ENST421 or NRSC421. Formerly: NRSC421. The chemistry and composition of mineral and organic colloids in soils, including ion exchange, oxidation-reduction, acidity, surface charge, and solution chemistry. Lectures and readings pertain to plant nutrition, waste disposal, and groundwater quality.

ENST 422 Soil Microbial Ecology (3) Prerequisite: ENST200; or 1 course in BCHM; or must have completed a course in microbiology; or students who have taken courses with comparable content may contact the department. Also offered as: ENST622. Credit only granted for: ENST422 or NRSC422. Formerly: NRSC422. The interdisciplinary study of soil microorganisms and their interactions with the mineral matrix; resulting in processes such as nutrient cycling, decontamination, and natural product production. We will focus on the diversity of soil communities, their survival strategies, and the new strategies used to study these communities.

ENST 423 Soil-Water Pollution (3) Prerequisite: CHEM104 and ENST200; and permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST423 or NRSC423. Reaction and fate of pesticides, agricultural fertilizers, industrial and animal wastes in soil and water with emphasis on their relation to the environment.

ENST 424 Field Study in Soil Morphology (4) Prerequisite: ENST200. Credit only granted for: ENST424 or NRSC424. Formerly: NRSC424. Additional information: Students must pay a $300 course activities fee. The fundamentals of making morphological descriptions of soils, using standard techniques, terminology, and abbreviations of the National Cooperative Soil Survey. Given a regional perspective and reasonable assumptions regarding soil properties, students should become competent to classify soils which they have described in the field and also make interpretations concerning the suitability of soils for various potential uses.

ENST 430 Wetland Soils (3) Prerequisite: ENST200. Credit only granted for: ENST430, ENST630, or NRSC461. Formerly: NRSC461. The soils of wetlands including hydrology, chemistry, and genesis are discussed. Federal and regional guidelines for wetland soils are covered with an emphasis on validating interpretations through field observations.

ENST 432 Environmental Microbiology (3) Prerequisite: CHEM131 and CHEM132. And BSCI170 and BSCI171; or BSCI105. Credit only granted for: ENST432 or ENST499M. Formerly: ENST499M. Microorganisms are everywhere and mediate many of the processes that we observe everyday. These organisms are the unseen catalysts for numerous industrial processes and are critical to many emerging technologies and novel products. Environmental microbiologists ask: How do microorganisms in the environment benefit society? This course will answer this question by examining microbes in bioremediation, food safety, climate change, and biotechnology.

ENST 434 Toxic Contaminants: Sources, Fate, and Effects (3) Prerequisite: ENST333 and ENST334. Study of the release to the environment, transport through natural compartments, persistence and ultimate fate of various classes of contaminants produced as a result of human activities. Topics will culminate in discussions of impacts to wildlife and human health. Students should emerge with a practical appreciation of the actual risks from exposure to a variety of environmental contaminants and an understanding of the environmental and human health implications of continuing the contaminating activities.

ENST 436 Emerging Environmental Threats (3) Prerequisite: ENST233; or permission of AGNR-Environmental Science & Technology department. Examine new and potential environmental concerns in the air, water, soil, space, and the built environment. Emphasis on studying the intrinsic links between ecosystem and human health. Topics will include climate change, resource consumption, biodiversity change, infectious disease, non-traditional pollutants, and other complex and significant environmental concerns.

ENST 440 Crops, Soils and Civilization (3) Credit only granted for: ENST440 or NRSC440. Formerly: NRSC440. Role and importance of crop and soil resources in the development of human civilization. History of crop and soil use and management as they relate to the persistence of ancient and modern cultures.

ENST 441 Sustainable Agriculture (3) Credit only granted for: ENST441 or NRSC441. Formerly: NRSC441. Environmental, social and economic needs for alternatives to the conventional, high-input farming systems which currently predominate in industrial countries. Strategies and practices that minimize the use of non-renewable resources.

ENST 443 Industrial Ecology (3) Prerequisite: (MATH140 or MATH120; or must have completed MATH220); and BSCI361. Or permission of AGNR-Environmental Science & Technology department. Also offered as: ENST643. Credit only granted for: ENST443, ENST643, or MEES698J. Problems of waste management and recycling in human societies are covered. The industrial ecology approach to design is contrasted with analogous patterns and processes from natural ecosystems.

ENST 445 Ecological Risk Assessment (3) Prerequisite: ENST360 or BSCI361; and (BIOM301 and ENST334). Or permission of AGNR-Environmental Science & Technology department. Assessment of ecological impacts of perturbations on natural systems. Course will describe quantitative methods for estimating environmental impacts by extrapolating from laboratory and field data. The role of regulatory agencies and implications of scientific uncertainty on risk management will be covered.

ENST 450 Wetland Ecology (3) Prerequisite: BIOM301; or permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST450, NRMT450, or MEES650. Formerly: NRMT450. Plant and animal communities, biogeochemistry, and ecosystem properties of wetland systems. Laboratory emphasizes collection and analysis of field data on wetland vegetation, soil, and hydrology.

ENST 452 Wetland Restoration (3) Prerequisite: (BSCI160 and BSCI161; or BSCI106); and (BSCI362, ENST450, ENST360, or BSCI361). Or permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST452, ENST652, or MEES652. Design, construction, and evaluation of wetlands restored or created to provide ecosystem services or to mitigate losses due to development. Topics include fundamental properties of wetlands, ecological restoration theory, site selection and goal-setting, design plans, practices for establishing wetland hydrology, substrate, and vegetation, and restored ecosystem monitoring. Two mandatory Saturday field trips will be held (dates to be announced); waterproof boots or waders are recommended for field trips.

ENST 453 Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology (3) Credit only granted for: ENST453 or ENST653. Concepts of surface water balance, surface radiative flux, precipitation and evaporation measurements.

ENST 460 Principles of Wildlife Management (3) Prerequisite: Must have completed two semesters of biology laboratory; and (ENST360; or BSCI361). Or permission of AGNR-Environmental Science &

Technology department. Credit only granted for: ENST460 or NRMT460. Formerly: NRMT460. Ecological principles and requirements of wildlife as basis for management, and introduction to the scientific literature. Conflicts in wildlife management, government administration of wildlife resources, legislation, and history of the wildlife management profession.

ENST 461 Urban Wildlife Management (3) Credit only granted for: ENST461 or NRMT461. Formerly: NRMT461. Ecology and management of wildlife in urban areas. For students in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning, design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values, review of private conservation organizations.

ENST 462 Field Techniques in Wildlife Management (3) Prerequisite: ENST460. And BSCI160 and BSCI161; or BSCI106. And BSCI170 and BSCI171; or BSCI105. Recommended: ENST461. Restriction: Permission of AGNR-College of Agriculture & Natural Resources. Credit only granted for: ENST462, NRMT462, or NRMT489B. Formerly: NRMT462. Hands-on experience with field techniques in wildlife management focusing on various methods of conducting indices, estimates, and censuses of wildlife populations. Includes capture and handling of amphibians, reptiles, birds, and mammals by use of drift fences, cover boards, mist nets, box traps, and dart guns.

ENST 463 Wildlife Habitat and Population Modeling (3) Prerequisite: ENST460 and GEOG373; and (MATH120; or must have completed MATH220). Or permission of AGNR-Environmental Science & Technology department. Restriction: Must be in Environmental Sci & Tech program; and must be in Environmental Science and Policy program. Students will gain basic tools for the analysis and modeling of wildlife population demographics and wildlife habitat. This class will be broken into two components: 1) will teach students techniques of modeling wildlife field data for the purpose of estimation of key parameters such as population size, viability, and other demographic rates using programs such as Riskman, Vortex, and Mark; 2) will teach students real world techniques used to determine and model habitat use on multiple scales using statistical analyses, GIS, and stand-alone programs such as Home Ranger and Biomapper. This class is designed for wildlife and natural resources majors.

ENST 466 Ecology and Management of Wildlife Habitats (3) Recommended: ENST460. Introduction to general concepts of wildlife habitat ecology and management. Specifically,land use practices on public and private lands and how these practices influence wildlife production. Conduct wildlife habitat evaluations and options for alterations/manipulations to achieve specific management goals. The class will culminate with the creation and planning of a wildlife management plan.

ENST 467 Ecology and Management of Wildlife Habitats Lab (2) Corequisite: ENST466. An introduction to the principles of wildlife habitat data analysis applied at the population level. This class will teach students real world techniques used to determine and model habitat use on multiple scales. This lab course complements the material covered in ENST 466.

ENST 471 Capstone I (2) This course will be conducted in a group discussion format that will focus on professional project proposal preparation and presentation, critical evaluation of environmental science research, professional development, and career planning. Students will develop and present original project proposals and critique project proposals presented by others.

ENST 472 Capstone II (3) Prerequisite: ENST471. Restriction: Must be in a major within AGNR-Environmental Science & Technology department; and permission of AGNR-Environmental Science & Technology department. This course is the second in a two-part series. Students will continue work on projects proposed and begun in ENST471. Focus on professional project preparation, presentation, critical

evaluation on environmental science research, professional development, and career planning. Students will develop and present original projects and critique projects presented by others.

ENST 479 Tropical Ecology and Resource Management (1-6) Prerequisite: Must have completed an introductory economics course. And BSCI160 and BSCI161; or BSCI106. Restriction: Permission of instructor. Repeatable to 10 credits if content differs. Formerly: NRMT479. Tropical ecosystems and issues of human use and impact. Includes lectures which lead up to an off-campus trip in a tropical environment.

ENST 481 Ecological Design (3) Prerequisite: (MATH120 or MATH140; or must have completed MATH220); and (PHYS121 and CHEM131); and (BSCI361; or students who have taken courses with comparable content may contact the department). Or permission of instructor. Restriction: Permission of AGNR-Environmental Science & Technology department. Also offered as: ENST681, MEES681. Credit only granted for: ENST481, ENST681, or MEES681. An advanced survey course on the field of ecological design. Principles of design are illustrated with case studies from biologically-based waste treatment systems, ecosystem management and sustainable development. Concepts covered include ecology, ecological engineering, nutrient cycling, emergy, lifecycle analysis, and design process. Technologies include treatment wetlands, living machines, anaerobic digestion, rain gardens, bioswales, bioremediation, algal turf scrubbers, and green building design.

ENST 489 Field Experience (1-4) Restriction: Permission of AGNR-Environmental Science & Technology department. Repeatable to 6 credits. Formerly: NRMT489. Planned field experience for both major and non-major students.

ENST 499 Special Topics in Environmental Science and Technology (1-4) Restriction: Permission of AGNR-Environmental Science & Technology department. Credit only granted for: ENST499, NRMT499, or NRSC499. Formerly: NRSC499 and NRMT499. An independent study, and/or lecture, and/or laboratory series organized to study a selected phase of Environmental Science and Technology not covered by existing courses. Credit arranged with supervising faculty member.

EPIB -- Epidemiology and Biostatistics

EPIB 300 Biostatistics for Public Health Practice (3) Prerequisite: Minimum grade of C- in CHEM131 and CHEM132. Restriction: Must be in Public Health Science program. Also offered as: HLTH300. Credit only granted for: EPIB300 or HLTH300. An examination of biostatistical concepts and procedures as they relate to contemporary issues in public health. Focus on applications, hands-on-experience, and interpretations of statistical findings in public health research.

EPIB 301 Epidemiology for Public Health Practice (3) Prerequisite: Minimum grade of C- in EPIB300. Restriction: Must be in one of the following programs (Community Health; Public Health Science). Also offered as: HLTH301. Credit only granted for: EPIB301 and HLTH301. An examination of the discipline of epidemiology and its application to public health issues and practices, covering current epidemiological concepts and methods.

EPIB 330 The Coming Plague: Public Health Perspectives (3) Prerequisite: BSCI202. Disease control and prevention is fundamental to the health of local, national, and global populations. Infectious agents are constantly adapting and breaching our defenses. Factors related to society, the environment, and our increasing global interconnectedness increase the likelihood of disease emergence and spread. Vaccines and antibiotics, demographic changes and urbanization, climate change and natural disasters, international travel and commerce, poverty and war create conditions for infectious diseases to spread. So how do we

design and execute solutions to public health threats? How do research, policies, interventions, and budgets affect public health systems?

EPIB 399 Epidemiology and Biostatistics Independent Study (1-3) Restriction: Must have earned a minimum of 60 credits; and minimum cumulative GPA of 3.0. Repeatable to 6 credits if content differs. The EPIB undergraduate independent study is an opportunity for undergraduates from other departments in the SPH or the university to work with an Epidemiology and Biostatistics faculty member on research or special projects that are based out of EPIB.

EPIB 400 Obesity: An Epidemiologic Perspective (3) Prerequisite: 1 course with a minimum grade of C- from (EPIB301, HLTH301). The epidemic of obesity, its causes and consequences, and issues related to energy balance will be covered. Students will characterize the obesity epidemic both nationally and internationally, compare and contrast the metrics of obesity, understand the biological consequences of different obesity phenotypes, and describe characteristics of the obesogenic environment. Throughout the course students will be introduced to the application of epidemiological methods to studies of obesity.

FILM -- Film Studies

FILM 245 Film Form and Culture (3) Restriction: Must not have completed ENGL245. Also offered as: ENGL245. Credit only granted for: CMLT214, CMLT245, ENGL245, or FILM245. Formerly: CMLT214. Introduction to film as art form and how films create meaning. Basic film terminology; fundamental principles of film form, film narrative, and film history. Examination of film technique and style over past one hundred years. Social and economic functions of film within broader institutional, economic, and cultural contexts.

FILM 283 Introduction to Cinema Studies (3) Restriction: Must not have completed SLLC283. Also offered as: SLLC283. Credit only granted for: SLLC283 or FILM283. Introduction to the critical analysis of international film. Development of a set of critical technical tools for examining film within a variety of cultural settings. Focus on an analysis of film form and the aesthetics of cinema that differentiate it from other media.

FILM 298 Special Topics in International Film Studies (3) Repeatable to 9 credits if content differs. Special topics in International Film.

FILM 301 Cinema History I: The Silent Era (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Examines the development of silent cinema from the 1890s to the early 1930s drawing on at least five distinct national traditions (French, German, Russian, British, and American). Introduces students to key cinematic conventions as they emerged around the world.

FILM 302 Cinema History II: The Sound Era (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283. Restriction: Must have permission of the Film Studies program. Introduction to the international history of cinema from sound around 1930 to the present.

FILM 311 Documentary Film (3) Prerequisite: ENGL245, FILM245, or SLLC283; or permission of ARHU-College of Arts & Humanities. Credit only granted for: FILM311 or ENGL329L. A survey of currents in the history of the documentary film, beginning with early cinema and continuing through to more recent manifestations.

FILM 319 Special Topics in Documentary, Animation, Experimental Cinema, and Other Visual Media (3) Repeatable to 6 credits. Examine the possibilities of non-narrative cinema, or cinema that is structured differently from the fiction feature film, as well as other media (television, digital imagery, and photography) that entertain a close relationship with cinema in terms of form, content, and audience. Content varies.

FILM 329 Special Topics in National/International Cinemas (3) Repeatable to 6 credits. Examine one or more national cinematic traditions (including Hollywood cinema), or may look across traditions comparatively, for example at international and/or transnational phenomena. Content varies.

FILM 331 Kafka and Film: The Uncanny in Literature and Film (3) Also offered as: GERM331. Credit only granted for: GERM331, FILM331, or HONR348K. Analysis of major works by Franz Kafka (1883-1924), his affinity to the cinema and use of cinematic means and techniques (e.g. the gaze, flashback, parallel action, gesture and body language, etc.) in his writings, as well as examination of adaptations of Kafka narratives (e.g. the Orson Welles and David Jones adaptations of The Trial, 1961, 1992) and other films that use Kafkaian themes (e.g. Steven Soderbergh's 'Kafka', 1991).

FILM 332 Brazilian Cinema (3) Also offered as: PORT332. Credit only granted for: PORT332, FILM332, or PORT378. Formerly: PORT378. Brazilian films from the late 1950s to the present with a special view to the relationship between cinema, society, historical dates, and social changes in Brazil. Taught in English.

FILM 334 Soviet Film: Propaganda, Myth, Modernism (3) Also offered as: RUSS334. Credit only granted for: RUSS334, FILM334, or RUSS298K. Formerly: RUSS298K. A Survey of Soviet film from the 1920s to 1991, focusing on important directors, genres, themes, and styles. Taught in English.

FILM 335 The Arab-Israeli Conflict Through Film (3) Also offered as: SLLC335. Credit only granted for: SLLC235, SLLC335, FILM335, HEBR298B, or ISRL249B. Formerly: HEBR298B or ISRL249B. How does the Arab-Israeli Conflict represent itself? How do the actors within this conflict (and some from outside) come to understand this conflict by representing it to themselves? The prism of film will touch on many of the various discourses (history, society, culture). The course will investigate whether the medium of film represents and formulates this Conflict in a particular way.

FILM 336 Soviet Cinema and Empire (3) Also offered as: RUSS336. Credit only granted for: RUSS336, FILM336 or RUSS398K. Formerly: RUSS398K. Examination of the concepts of "empire" and "nation" through their representation in Soviet cinema. Taught in English.

FILM 341 Filming War Zones: Representations of Wars in Iraq & Chechnya (3) Also offered as: ARAB341. Credit only granted for: ARAB341 or FILM341. Investigation of how diverse political, cultural and religious agendas of the late 20th through early 21st centuries construct a wide variety of war fictions, or ideologically informed war narratives

FILM 342 Film Comedy (3) Prerequisite: FILM283, ENGL245, FILM245, or SLLC283; or permission of ARHU-College of Arts & Humanities. Also offered as: SLLC342. Credit only granted for: SLLC342, FILM342, or SLLC368B. Formerly: SLLC368B. Comedy as a specific cinematic genre.

FILM 343 Hollywood Genres After 1970 (3) Prerequisite: FILM283, ENGL245, FILM245, or SLLC283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: SLLC343. Credit only granted for: SLLC343 or FILM343. Introduction to contemporary Hollywood cinema.

FILM 344 Film and the Fantastic (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Also offered as: SLLC344. Credit only granted for: SLLC344 or FILM344. Survey of fantastic cinema, encompassing American classics, Hollywood recent productions, and independent films, as well as Asian horror films, anime, and European fantasy.

FILM 345 The Films of Alfred Hitchcock (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Credit only granted for: FILM345 or ENGL329J. An examination of important Hitchcock films from the perspective of innovation, aesthetics, and cultural history.

FILM 346 The Films of Billy Wilder (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; and permission of ARHU-College of Arts & Humanities. Restriction: Must not have completed ENGL329K. Credit only granted for: FILM346 or ENGL329K. An examination of Billy Wilder's five-decade-long career, spanning a variety of genres, approaches, and languages.

FILM 352 The Baddest Decade: The 1970s in American Film and American History (3) Prerequisite: HIST201. Also offered as: HIST304. Credit only granted for: FILM352 or HIST304. The history of the United States and of its cinema in the 1970s.

FILM 359 Special Topics in Genres/Auteurs/Cinema Movements (3) Repeatable to 6 credits. Examine narrative cinema from the perspective of content (themes, issues, structures) and style through the lens of genre, auteurship (a concept of authorship in film studies), and/or historical aesthetic movements that have been influential in the development of cinema as an art and film studies as a field. Content varies.

FILM 361 Cinema and Globalization (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Also offered as: SLLC361. Credit only granted for: SLLC361, FILM361, SLLC368G, or CMLT498C. Formerly: SLLC368G or CMLT498C. Introduction to cinema as a global phenomenon.

FILM 362 Vision, Visuality, and the Gaze in Cinema (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of Film Studies Program. Also offered as: SLLC362. Credit only granted for: SLLC362, FILM362, or SLLC368A. Formerly: SLLC368A. Students will build a way of talking critically about film. The prism of seeing, visuality, the gaze, and the like will serve as a way to investigate the way films take on meaning as well as to understand how film participates in a wide network of interconnected ideas, concepts, and modes of thought that have contributed to the audiences' ability to make sense of what a film is conveying.

FILM 369 Special Topics in Film Theories (3) Repeatable to 6 credits if content differs. Examines specific methodologies (structuralism, feminism, postcolonialism, etc.) for the critical analysis of film. The course will also consider the historical development of theoretical concepts. Content varies.

FILM 385 German Cinema (3) Also offered as: GERM385. Credit only granted for: FILM385, GERM285 or GERM385. Formerly: GERM285. A history of German cinema from the golden age of silent films to the flourishing film culture of the 21st Century. Focuses on changing ideas of the role and purpose of national cinema, as well as the cinematic representation of nation and national identity. Taught in English.

FILM 388 Experiential Learning: Film Studies (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher. Repeatable to 6

credits. Connects students' theoretical understanding of film studies, as obtained through the classroom, to professional experience.

FILM 410 Documentary and Narrative (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Also offered as: SLLC410. Credit only granted for: SLLC410 or FILM410. An examination of the relationship between film and reality, focusing on documentary film.

FILM 411 Experimental Film (3) Also offered as: SLLC411. Credit only granted for: SLLC411 or FILM411. Introductory survey of European and U.S. American experimental cinema.

FILM 412 Animation and Cinema (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Restriction: Must not have completed ENGL468C. Credit only granted for: FILM412 or ENGL468C. An examination of animation in art, cinema, and other media.

FILM 419 Special Topics in Documentary, Animation, Experimental Cinema, and Other Media (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; and or permission of ARHU College of Arts and Humanities. Restriction: Varies depending on the crosslist. Repeatable to 6 credits if content differs. Advanced studies in Documentary, Animation, Experimental Cinema, and Other Media. Examines the possibilities of non-narrative cinema, or cinema that is structured differently from the fiction feature film, as well as other media (television, digital imagery, and photography) that entertain a close relationship with cinema in terms of form, content, and audience. Content varies.

FILM 420 French Cinema: A Cultural Approach (in Translation) (3) Also offered as: FREN480. Credit only granted for: FREN480 or FILM420. A study of French culture, civilization, and literature through the medium of film. Taught in English.

FILM 421 Francophone African Film (3) Also offered as: FREN421. Credit only granted for: FREN421 or FILM421. Imaginary and Memory in the Reality of Francophone African Film from 1960-present. Taught in English.

FILM 423 Women and French Cinema (3) Also offered as: FREN423. Credit only granted for: FREN423 or FILM423. Cultural identity, social boundaries and gender roles in French film as well as introduction to film textual analysis and diverse film theories (semiotics, film and psychoanalysis, feminist film theory, structuralism, narratology, spectatorship and cultural studies). Taught in French.

FILM 426 Modern Chinese Film and Visual Culture (3) Also offered as: ARTH484. Credit only granted for: FILM426 or ARTH484; ARTH489F in F2012, F2011, F2008, or S2009; or ARTH488F in S2010, S2008, or F2009. Formerly: ARTH489F in F2012, F2011, F2008, or S2009; or ARTH488F in S2010, S2008, or F2009. Modern Chinese culture, society, and history studied through examples of art, film, and visual culture.

FILM 427 Visions and Fictions from Spain (3) Prerequisite: SPAN331, SPAN332, or SPAN333; or students who have taken courses with comparable content may contact the department; or permission of ARHU-Spanish & Portuguese Languages & Literatures department. Also offered as: SPAN427. Credit only granted for: FILM427 or SPAN427. Overview of Spanish Cinema from the end of the 19th century through present day Spain. Exploration of the production of literary and cinematic texts in their sociohistorical, political, religious and cultural contexts. Taught in Spanish.

FILM 429 Special Topics in National/International Cinemas (3) Repeatable to 6 credits. Courses in National/International Cinemas may examine one or more national cinematic traditions (including Hollywood cinema), or may look across traditions comparatively, for example at international and/or transnational phenomena. Content varies.

FILM 430 Critical Issues in Israeli Cinema (3) Also offered as: HEBR430. Credit only granted for: HEBR430 or FILM430. Critical investigation of Zionist and Israeli culture and politics through film.

FILM 431 Italian Cinema II - In Translation (3) Also offered as: ITAL473. Credit only granted for: ITAL473, ITAL474, or FILM431. A study of Italian society and culture through the medium of film from the mid 1970's to the present. Taught in English.

FILM 433 Holocaust in Italian Literature and Cinema (3) Also offered as: ITAL433. Credit only granted for: ITAL433, or FILM433. Review of literature and theoretical writings of Italy's most famous survivor, Primo Levi, to a sampling of Italian films that focus in vastly different and often extremely controversial ways on the experience of the concentration camp, while addressing a series of central questions from the brutal realities of the camps to the "compromises" made in order to survive, the need to bear witness, and the idea of the survivor's guilt.

FILM 441 Italian Cinema I: Neorealism (3) Also offered as: ITAL436. Credit only granted for: FILM441 or ITAL436. Explores representations of Italy in cinema with special focus on identity formation and the movement of Italian neorealism and post neorealism. Taught in English.

FILM 451 Film Noir and American Culture (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Restriction: Must not have completed ENGL428A (Summer 2006, Spring 2007, Summer 2009) or ENGL379Q (Fall 2009) or HHUM106 (Spring 2012), or ARTH389A (Spring 2012). Credit only granted for: FILM451, ENGL468D, ENGL428A ,ENGL379Q, HHUM106, or ARTH389A (Spring 2012). Formerly: ENGL428A and ENGL379Q. Introduction to a variety of American movies made in the 1940s and 1950s whose dark themes and stark black-and-white lighting led to their identification as film noir.

FILM 452 The Origins of Cinema (3) Prerequisite: ENGL245, FILM245, FILM283, or SLLC283; or permission of Film Studies Program. Credit only granted for: FILM452 or ENGL468G. An in-depth engagement with the specificity of early cinema, dedicated to a comparative framework that compares the early cinema period (1890-1915) to other moments of media emergence, both before and after cinema, with special emphasis on the current, "digital" moment.

FILM 459 Special Topics in Genres/Auteurs/Cinema Movements (3) Repeatable to 6 credits. Special topics in genres, auteurs, and cinema movements.

FILM 461 Political Cinema (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Also offered as: SLLC461. Credit only granted for: SLLC461, FILM461, SLLC468P, or CMLT498P. Formerly: SllC468P and CMLT498P. Histories of cinemaa and politics in the 20th century.

FILM 462 Realism and the Real in Film (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of instructor. Credit only granted for: FILM359R, SLLC368R or FILM462. Formerly: FILM359R/SLLC368R. Exploration of the problem of realism, one of the most central theoretical issues in film studies.

FILM 463 Screening Time: History and Memory in Cinema (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-College of Arts & Humanities. Also offered as: SLLC463. Credit only granted for: SLLC463 or FILM463. An examination of the ways and techniques with which cinema produces a sense of time in the viewer.

FILM 464 The Violence of Cinema (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of instructor. Credit only granted for: FILM469A/SLLC468A or FILM 464. Formerly: FILM469A/SLLC468A. An investigation of cinema's multifaceted relationship to violence.

FILM 469 Special Topics in Film Theories II (3) Repeatable to 6 credits. Special topics in film theories.

FILM 499 Directed Study in Film Studies (1-3) Prerequisite: Permission of instructor. Repeatable to 9 credits if content differs. Readings and Research in Film Studies under faculty supervison.

FIRE -- First-Year Innovation & Research Experience

FIRE 120 FIRE SEMESTER 1 (3) Additional information: This is the first course in the FIRE (First-Year Innovation & Research Experience) program sequence. Engages the research process through the design, research, collaborative authorship and iterative review-based refinement of research proposals. Students find and analyze primary literature, think creatively, author and communicate research proposals in a scholarly fashion and work collaboratively to solve scientific and societal problems using technology, delegation and productive team communication.

FIRE 150 FIRE SEMESTER 2: Antibiotic Resistance (3) Recommended: FIRE120. FIRE SEMESTER 2 course for students in the FIRE program joining the Antibiotic Research research stream.

FIRE 151 FIRE SEMESTER 2: Sustainability Analytics (3) Recommended: FIRE120. FIRE SEMESTER 2 course for students in the FIRE program joining the Sustainability Analytics research stream.

FIRE 152 FIRE SEMESTER 2: Environmental Pathogens (3) Recommended: FIRE120. FIRE SEMESTER 2 course for students in the FIRE program joining the Environmental Pathogens research stream.

FIRE 153 FIRE SEMESTER 2: Found In Translation (3) Recommended: FIRE120. FIRE SEMESTER 2 course for students in the FIRE program joining the Found In Translation research stream.

FIRE 154 FIRE SEMESTER 2: Risk Communication & Resilience (3) Recommended: FIRE120. FIRE SEMESTER 2 course for students in the FIRE program joining the Risk Communication and Resilience research stream.

FIRE 155 FIRE SEMESTER 2: Terrapin Genome Project (3) Recommended: FIRE120. FIRE SEMESTER 2 course for students in the FIRE program joining the Terrapin Genome Project research stream.

FIRE 157 FIRE SEMESTER 2: Addiction Science (3) Recommended: FIRE120. FIRE SEMESTER 2 course for students in the FIRE program joining the Addiction Science research stream.

FIRE 160 FIRE SEMESTER 2: Transgenerational Brain Initiative (3) Recommended: FIRE120. Restriction: Must be in the program FIRE. FIRE SEMESTER 2 course for students in the FIRE program joining the Transgenerational Brain Initiative research stream.

FIRE 162 FIRE SEMESTER 2: Once and Future Planet (3) Recommended: FIRE120. Restriction: Must be in the program FIRE. FIRE SEMESTER 2 course for students in the FIRE program joining the Once and Future Planet research stream.

FIRE 163 FIRE SEMESTER 2: Animal and Human Relationships (3) Recommended: FIRE120. Restriction: Must be in the program FIRE. FIRE SEMESTER 2 course for students in the FIRE program joining the Animal and Human Relationships research stream.

FIRE 164 FIRE SEMESTER 2: Autonomous Unmanned Systems (3) Recommended: FIRE120. Restriction: Must be in the program FIRE. FIRE SEMESTER 2 course for students in the FIRE program joining the Autonomous Unmanned Systems research stream.

FIRE 250 FIRE SEMESTER 3: Antibiotic Resistance (3) Prerequisite: FIRE150. FIRE SEMESTER 3 course for students in the FIRE program joining the Antibiotic Research research stream.

FIRE 251 FIRE SEMESTER 3: Sustainability Analytics (3) Prerequisite: FIRE151. FIRE SEMESTER 3 course for students in the FIRE program joining the Sustainability Analytics research stream.

FIRE 252 FIRE SEMESTER 3: Environmental Pathogens (3) Prerequisite: FIRE152. FIRE SEMESTER 3 course for students in the FIRE program joining the Environmental Pathogens research stream.

FIRE 253 FIRE SEMESTER 3: Found In Translation (3) Prerequisite: FIRE153. FIRE SEMESTER 3 course for students in the FIRE program joining the Found In Translation research stream.

FIRE 254 FIRE SEMESTER 3: Risk Communication & Resilience (3) Prerequisite: FIRE154. FIRE SEMESTER 3 course for students in the FIRE program joining the Risk Communication and Resilience research stream.

FIRE 255 FIRE SEMESTER 3: Terrapin Genome Project (3) Prerequisite: FIRE155. FIRE SEMESTER 3 course for students in the FIRE program joining the Terrapin Genome Project research stream.

FIRE 257 FIRE SEMESTER 3: Addiction Science (3) Prerequisite: FIRE157. FIRE SEMESTER 3 course for students in the FIRE program joining the Addiction Science research stream.

FIRE 260 FIRE SEMESTER 3: Transgenerational Brain Initiative (3) Prerequisite: FIRE160. FIRE SEMESTER 3 course for students in the FIRE program joining the Transgenerational Brain Initiative research stream.

FIRE 262 FIRE SEMESTER 3: Once and Future Planet (3) Prerequisite: FIRE162. FIRE SEMESTER 3 course for students in the FIRE program joining the Once and Future Planet research stream.

FIRE 263 FIRE SEMESTER 3: Animal and Human Relationships (3) Prerequisite: FIRE163. FIRE SEMESTER 3 course for students in the FIRE program joining the Animal and Human Relationships research stream.

FIRE 264 FIRE SEMESTER 3: Autonomous Unmanned Systems (3) Prerequisite: FIRE164. FIRE SEMESTER 3 course for students in the FIRE program joining the Autonomous Unmanned Systems research stream.

FMSC -- Family Science

FMSC 105 Individuals in Families (3) Credit only granted for: FMSC105 or FMST105. Formerly: FMST105. Personal growth and development within the family context. Exploration of self-awareness, sex-role image, life transitions, and interpersonal and family relations.

FMSC 110 Families and Global Health (3) Students will explore, define, and study global health, social determinants of health, health inequalities, gender inequality, family violence, and maternal and child health using a global perspective.

FMSC 111 Credit Cards and College Students (1) Recommended: Moderate level of computer literacy, especially Internet and ELMS. Reliable computer and Internet access. Credit only granted for: FMSC111, FMSC341 or FMSC498D. Formerly: FMSC498D. Provides college students with factual information about basic money management skills, emphasizing the responsible use of credit, specifically credit cards. Topics will include financial goals, spending plan, wise use of credit, debt management, consumer credit protection, and ID Theft. Online lessons will include video clips and interactive class activities. Students will learn the basics to build a strong financial future.

FMSC 170 Future of Families: Issues and Controversies (3) Credit only granted for: FMSC170 or FMSC298F. Formerly: FMSC298F. Examination of current trends and controversial issues in family life, including issues of marriage, reproductive technologies, adoption, child custody, remarriage, and marital violence.

FMSC 190 Man Up! Where Are The Fathers? (3) An examination of changing fatherhood roles, health, and inequality in diverse families. Focus will be on masculinities and disparities among men by race and class; provider role expectations; and trauma and violence faced by men in contemporary society.

FMSC 260 Couple Relationships (3) Credit only granted for: FMSC260 or FMST260. Formerly: FMST260. Couple relationships and their alternatives in contemporary dating, courtship and marriage.

FMSC 280 Global, Child & Family Health: Getting There Via E-Communications (3) Credit only granted for: FMSC280 or FMSC289G. Formerly: FMSC289G. Students will learn about global maternal, child and family health issues and how these issues may affect their lives. Interdisciplinary teams of students will collaborate to develop programs aimed at improving global family health through the use of information and communications technologies.

FMSC 290 Family Economics (3) Credit only granted for: FMSC290 or FMST290. Formerly: FMST290. Application of economic methodology to study families under various economic situations. Examination of how decisions about marriage, divorce, fertility, consumption and time use are influenced by labor/housing markets, tax structure, social welfare benefits and other economic considerations.

FMSC 298 Special Topics in Family Science (1-3) Repeatable to 12 credits if content differs. Formerly: FMST298. Topics of special interest under the general guidance of the Department of Family Studies.

FMSC 302 Research Methods in Family Science (3) Prerequisite: Must have completed an introductory statistics course. Restriction: Must be in a major within SPHL-Family Science department. Credit only granted for: FMSC302 or FMST302. Formerly: FMST302. Introduction to the methods of the social and behavioral sciences employed in family science. The role of theory, the development of hypotheses, measurement, design, and data analysis.

FMSC 310 Maternal, Child and Family Health (3) Credit only granted for: FMSC310, FMSC410 or FMSC498A. Formerly: FMSC498A and FMSC410. Additional information: A comprehensive understanding of maternal, child, and family health, with additional emphasis on environmental health, needs assessment and evaluation, enabling students to more effectively address issues in the workplace. Overview of the major issues in Maternal, Child, and Family Health in the U.S. and the world. The course will cover the social, political, environmental, and economic factors that shape the health of women, children, and families throughout the life course. It will employ the core disciplines of public health -- 1) epidemiology/biostatistics, 2) environmental health, 3) health policy and administration, and 4) social and behavioral health -- to examine these factors. The course introduces specific issues and interventions and places these issues and interventions within their broad sociohistorical context.

FMSC 330 Family Theories and Patterns (3) Restriction: Junior standing or higher. Credit only granted for: FMSC330 or FMST330. Formerly: FMST330. Theory and research on the family, including a cross-cultural analysis of family patterns.

FMSC 332 Children in Families (3) Prerequisite: PSYC100 or FMSC105. Credit only granted for: FMSC332 or FMST332. Formerly: FMST332. A family life education approach to the study of children and families. Emphasis on the interaction of children with parents, siblings, extended kin, and the community.

FMSC 341 Personal and Family Finance (3) Credit only granted for: FMSC341 or FMST341. Formerly: FMST341. Individual and family financial strategies with emphasis on financial planning, savings, investments, insurance, income taxes, housing, and use of credit. Planning, analyzing, and controlling financial resources to resolve personal/family financial problems and to attain financial security.

FMSC 381 Poverty, Affluence, and Families (3) Prerequisite: SOCY100 or SOCY105. Restriction: Must be in a major within SPHL-Family Science department. Credit only granted for: FMSC381 or FMST381. Formerly: FMST381. Social, political, cultural and economic factors influencing income and wealth in American families.

FMSC 383 Delivery of Human Services to Families (3) Prerequisite: FMSC330. Restriction: Must be in a major within SPHL-Family Science department. Credit only granted for: FMSC383 or FMST383. Formerly: FMST383. Processes of service delivery with special emphasis upon relationships among managers, service providers and clients. The impact of human service systems on families.

FMSC 386 Experiential Learning (3-6) Prerequisite: Permission of SPHL-Family Science department. Restriction: Junior standing or higher. Credit only granted for: FMSC386 or FMST386. Formerly: FMST386.

FMSC 399 Independent Study (1-6) Prerequisite: Permission of SPHL-Family Science department. Repeatable to 12 credits. Formerly: FMST399.

FMSC 420 African American Families (3) Recommended: FMSC330. Credit only granted for: FMSC420 or FMSC498F. Formerly: FMSC498F. Examination of the history, structure, cultural foundation, and diversity of African American family life is the focus of this class. Presentations and discussions enable students to identify, analyze, and assess: (1) the major theoretical perspectives used in the study of African American families; (2) the impact of social policy on African American families; and (3) specific areas of family life (e.g., marriage and divorce, parenting, child development, health disparities).

FMSC 425 Military and Veteran Family Services (3) Recommended: Moderate level of computer literacy, especially Internet and ELMS. Reliable computer and Internet access. Credit only granted for: FMSC425 or FMSC498W. Formerly: FMSC498W. Overview of issues impacting contemporary military families including during times of war. Identification of challenges faced by military families related to deployment/reunion and mental and physical health, as well as support systems available. Examination of skills and strategies for working with service members, veterans, and military families.

FMSC 430 Gender Issues in Families (3) Prerequisite: SOCY100, SOCY105, or PSYC100. Also offered as: WMST430. Credit only granted for: FMSC430, FMST430, or WMST430. Formerly: FMST430. The development of historical, cultural, developmental, and psychosocial aspects of masculinity and femininity within the context of contemporary families and the implications for interpersonal relations.

FMSC 431 Family Crises and Intervention (3) Prerequisite: PSYC100. Credit only granted for: FMSC431 or FMST431. Formerly: FMST431. Family crises such as divorce, disability, substance abuse, financial problems, intra-familial abuse, and death. Theories and techniques for intervention and enhancement of family coping strategies.

FMSC 432 Adult Development and Aging in Families (3) Prerequisite: PSYC100; and (SOCY100 or SOCY105). And FMSC332; or must have completed a comparable development course. Restriction: Must be in a major within SPHL-Family Science department. Credit only granted for: FMSC432 or FMST432. Formerly: FMST432. Theory, research, history, and programming related to adult development and aging in the intergenerational context of family.

FMSC 440 Death and Loss in Family Life (3) Recommended: Moderate level of computer literacy, especially Internet and ELMS. Reliable computer and Internet access. Credit only granted for: FMSC440 or FMSC498B. Formerly: FMSC498B. Examination of how families experience grief and loss resulting from the death of a family member, including health and financial consequences. Overview of historical, social, psychological, cultural, medical, and legal dimensions of death in families from diverse backgrounds. Exploration of how the health care system and funeral home industry assist families in managing death and loss.

FMSC 445 Sexuality: Issues in Family Therapy and Service Delivery (3) Prerequisite: A basic course in human sexuality; and permission of instructor. Also offered as: FMSC645. Credit only granted for: FMSC445 or FMSC498T. Formerly: FMSC498T. Typical, dysfunctional, and pathological sexual functioning, including effects on individuals, couples, and family systems. Sensitizes students to sexual issues, explores how perceptions of such issues affect work with people, and emphasizes implications for marriage and family therapy.

FMSC 460 Violence in Families (3) Prerequisite: SOCY100, SOCY105, or PSYC100. Credit only granted for: FMSC460 or FMST460. Formerly: FMST460. Theories of child, spouse, and elder abuse in the family setting. Emphasis on historical, psychological, sociological and legal trends relating to physical, emotional, and sexual abuse. Introduction to methods for prevention and remediation.

FMSC 477 Internship and Analysis in Family Science (3) Prerequisite: FMSC383; and 9 credits in FMSC courses; and permission of SPHL-Family Science department. Restriction: Must be in a major within SPHL-Family Science department. Credit only granted for: FMSC477, FMST347, or FMST477. Formerly: FMST477. A supervised internship and a seminar requiring analysis. Opportunities to integrate theory and practice including 120 hours of contracted field experience. Summer or fall internship contracts due May 1; Spring contracts due December 1. See department for application procedures.

FMSC 485 Introduction to Family Therapy (3) Prerequisite: FMSC330; or 1 course from PSYC300-499 course range. Credit only granted for: FMSC485 or FMST485. Formerly: FMST485. The fundamental theoretical concepts and clinical procedures of marital and family therapy including premarital and divorce therapy issues.

FMSC 487 Legal Aspects of Family Problems (3) Credit only granted for: FMSC487 or FMST487. Formerly: FMST487. Laws and legal procedures, with emphasis on adoption, marriage, divorce, annulment, and property rights, and how they affect family life.

FMSC 498 Special Topics: Family Science (1-3) Prerequisite: Permission of SPHL-Family Science department. Repeatable to 6 credits if content differs. Formerly: FMST498. Special course topics in family studies.

FOLA -- Foreign Language

FOLA 108 Elementary Foreign Languages I (3) Repeatable to 99 credits if content differs. The first semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 109 Elementary Foreign Languages II (3) Prerequisite: FOLA108; and pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 99 credits if content differs. The second semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 118 Intermediate Foreign Languages I (3) Prerequisite: FOLA109; and pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 99 credits if content differs. The third semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

FOLA 119 Intermediate Foreign Language II (3) Prerequisite: FOLA118; and pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 99 credits if content differs. Developing intermediate language skills, in both grammar and vocabulary; enhancement of oral and writing abilities.

FOLA 128 Introductory Middle Eastern Languages I (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. An introduction to the three principal languages of the Islamic Middle East: Arabic, Persian, and Turkish. Only standard written form of the three languages is taught. May not be used to satisfy arts and humanities language requirement.

FOLA 129 Introductory Middle Eastern Languages II (3) Prerequisite: FOLA128; and permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Continuation of FOLA128. May not be used to satisfy arts and humanities language requirement.

FOLA 138 Directed Study of a Foreign Language I (3) Restriction: Permission of ARHU-College of Arts & Humanities; and must be a student of high motivation and proven language learning aptitude. Directed study of a modern foreign language with use of a self-instructional approach.

FOLA 139 Directed Study of a Foreign Language II (3) Prerequisite: FOLA138; and pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA138.

FOLA 148 Directed Study of a Foreign Language III (3) Prerequisite: FOLA139; and pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA139.

FOLA 149 Directed Study of a Foreign Language IV (3) Prerequisite: FOLA148; and pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA148.

FOLA 158 Directed Study of a Foreign Language (Intensive) I (6) Intensive directed study of a modern foreign language with use of a self-instructional approach. Equivalent to FOLA138 plus FOLA139.

FOLA 159 Directed Study of a Foreign Language (Intensive) II (6) Prerequisite: FOLA158; and pre-requisite must be in corresponding subject language. Or permission of ARHU-School of Languages, Literatures, and Cultures department. A continuation of FOLA158. Equivalent to FOLA148 plus FOLA149.

FOLA 228 Intermediate Middle Eastern Languages I (3) Prerequisite: FOLA129; and permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Continuation of FOLA129. May not be used to satisfy arts and humanities language requirement.

FOLA 329 Advanced Middle Eastern Languages II (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Continuation of FOLA328. May not be used to satisfy arts and humanities language requirement.

FOLA 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

FOLA 389 Foreign Civilization (3) Repeatable to 6 credits if content differs. A survey of the cultural history, arts and letters, folklore and life-style of the speakers of a language not otherwise offered. All readings and instruction in English.

FOLA 408 Foreign Language I (3) Intensive study of a foreign language or related topic not available under one of the current foreign language departments or programs. May not be used to fulfill the arts and humanities language requirement.

FOLA 409 Foreign Language II (3) Prerequisite: FOLA408; and pre-requisite must be in corresponding subject language. A continuation of FOLA 408. May not be used to fulfill arts and humanities language requirement.

FOLA 459 Foreign Literature in Translation (3) Repeatable to 6 credits if content differs. Reading and discussion of selected authors, periods or genres of a foreign literature not otherwise offered. All readings and instruction in English.

FREN -- French

FREN 101 Elementary French I (4) Restriction: Must not have 2 or more years of high school level French; and must not be a native/fluent speaker of French. Introduction to basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 103 Intensive Elementary French (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed FREN102; and must not be a native/fluent speaker of French. Credit only granted for: FREN102 or FREN103. Covers speaking, reading, writing, listening, and culture of French-speaking world.

FREN 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

FREN 203 Intensive Intermediate French (4) Prerequisite: FREN103; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of French. Credit only granted for: FREN201 or FREN203. Covers speaking, reading, writing, listening, and culture of French-speaking world.

FREN 204 French Grammar and Composition (3) Prerequisite: FREN201 or FREN203; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Not open to native/fluent speakers of French. Intensive study of French grammar and composition.

FREN 211 French Reading and Conversation (3) Prerequisite: FREN201 or FREN203. Restriction: Must not be a native/fluent speaker of French. Practice in spoken French at intermediate level based on readings in a variety of genres. Written homework and exams.

FREN 240 Masterworks of French Literature in Translation (3) Major works of French literature from pre-revolutionary France to the present. Emphasis on the individual in a social context. Taught in English.

FREN 241 Women Writers of French Expression in Translation (3) Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean and France. Taught in English.

FREN 242 Francophone Writers of Africa and the African Diaspora (3) An analysis of the works and ideas of 20th and 21st century Francophone writers (Africa, the Caribbeans, France). Taught in English.

FREN 243 Masterpieces in French and Francophone Cinemas (3) This course, taught in English, will present a large array of films directed by famous French directors (Jean Renoir, Robert Bresson, Jean-Luc Godard, Agnes Varda, etc..) and Francophone filmmakers (Arcand, Sembene) who were internationally known in their time and have had a considerable influence on today's filmmakers in the U.S. (Tarantino, Lynch, Lee, etc..) and abroad (Sissoko, Angelopoulos, VonTrier, ect..).

FREN 250 Introduction to Cultural and Textual Analysis (3) Prerequisite: FREN204; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a native/fluent speaker of French. Credit only granted for: FREN250 or FREN250H. Introduction to cultural and textual analysis of selected readings from various genres in French literature. Taught in French.

FREN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

FREN 298 Aspects of French Civilization (3) Repeatable to 6 credits if content differs. Additional information: Credit may not be applied to French major. Topic to be determined each semester. Historical or thematic approaches to French art, literature, and culture. Taught in English.

FREN 301 Composition and Style (3) Prerequisite: FREN250; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a native/fluent speaker of French. Grammatical analysis, elements of style; range of written genres.

FREN 302 Translation: French to English (3) Prerequisite: FREN301; or students who have taken courses with comparable content may contact the department. Practicum in translation primarily from French to English; contrastive analysis.

FREN 303 Translation: English to French (3) Prerequisite: FREN301; or students who have taken courses with comparable content may contact the department. Practicum in translation primarily from English to French; contrastive analysis.

FREN 306 Commercial French I (3) Prerequisite: FREN301; or students who have taken courses with comparable content may contact the department. Introduction to commercial French including correspondence and business terminology. Emphasis on cross-cultural concepts needed for successful interaction within business settings. Taught in French.

FREN 311 Advanced Oral Expression (3) Prerequisite: FREN250; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a native/fluent speaker of French. Linguistic and thematic analysis of written, audio, and visual texts. Focus on aural and oral skills. Some written assignments and evaluation.

FREN 312 France Today (3) Prerequisite: FREN301; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a native/fluent speaker of French. Analysis and discussion of current events and institutions using various French media resources.

FREN 351 From Romanticism to the Age of Modernism and Beyond (3) Prerequisite: FREN301; or students who have taken courses with comparable content may contact the department. A survey of the chief authors and major movements of French literature from Pre-Romanticism to the present.

FREN 352 From the Age of Epic and Romance to the Enlightenment (3) Prerequisite: FREN301; or students who have taken courses with comparable content may contact the department. A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century.

FREN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

FREN 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

FREN 388 Language House Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

FREN 399 Directed Study in French (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Advanced undergraduates develop syllabus, reading list, and course requirements with interested faculty member. Designed for in-depth study of material not offered in regular courses or as expansion of course material. To be planned during semester preceding registration.

FREN 400 Applied Linguistics (3) The nature of applied linguistics and its contribution to the effective teaching of foreign languages. Comparative study of English and French, with emphasis upon points of divergence.

FREN 401 Writing with Style (3) Prerequisite: FREN301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Advanced composition and stylistic analysis.

FREN 407 History of the French Language (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Evolution of the French language from Latin to modern French. Taught in French.

FREN 421 Francophone African Film (3) Also offered as: FILM421. Credit only granted for: FREN421 or FILM421. Imaginary and Memory in the reality of Francophone African Film from 1960-present. Taught in English.

FREN 423 Women and French Cinema (3) Also offered as: FILM423. Credit only granted for: FREN423 or FILM423. Cultural identity, social boundaries and gender roles in French film as well as introduction to film textual analysis and diverse film theories (semiotics, film and psychoanalysis, feminist film theory, structuralism, narratology, spectatorship and cultural studies). Taught in French.

FREN 429 Studies in French Literature and Culture of the Renaissance (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs. Selected topics in French literature of the Renaissance.

FREN 439 Studies in 17th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs. Selected topics in seventeenth-century French literature.

FREN 449 Studies in 18th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs. Selected topics in eighteenth-century French literature.

FREN 459 Studies in 19th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs. Selected topics in nineteenth-century French literature.

FREN 469 Studies in 20th Century French Literature and Culture (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs. Selected topics in twentieth-century French literature.

FREN 471 The Construction of French Identity I: From the Origins to the Age of Versailles (3) French life, customs, culture, traditions (800-1750).

FREN 472 The Construction of French Identity II: From the Revolution to the Early Twentieth Century (3) French life, customs, culture, traditions (1750 to the early twentieth century).

FREN 473 The Construction of French Identity III: Cross-Cultural Approaches to the Study of Contemporary French Society (3) Patterns of communication, mythology, and ideology in modern France, from the Third Republic to the present, through historical and cross-cultural approaches, with reference to the Francophone world.

FREN 474 Contemporary France: A Sociocritical Approach (3) Recommended: FREN473. A sociocritical approach to understanding modern French society through the study of print and non-print media documents (autobiography, film, and paraliterature), with reference to the Francophone world.

FREN 478 Themes and Movements of French Literature in Translation (3) Studies treatments of thematic problems or literary or historical movements in French literature. Topic to be determined each semester. Taught in English.

FREN 479 Masterworks of French Literature in Translation (3) Treats the works of one or more major French writers. Topic to be determined each semester. Taught in English.

FREN 480 French Cinema: A Cultural Approach (in Translation) (3) Also offered as: FILM420. Credit only granted for: FREN480 or FILM420. A study of French culture, civilization, and literature through the medium of film. Taught in English.

FREN 482 Gender and Ethnicity in Modern French Literature (3) Literature by women writers of France and other French speaking areas with a focus on the relationship between gender, ethnicity and writing. Taught in English.

FREN 488 Special Topics in Francophone Studies (3) Repeatable to 9 credits if content differs. Topic and language of instruction to be announced when offered.

FREN 489 Seminar in Themes or Movements of French Literature (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs.

FREN 495 Honors Thesis Research (3) Restriction: Must be admitted to the departmental honors program. The writing of a paper under the direction of a professor in this department and an oral examination. Required to fulfill the departmental honors requirement.

FREN 498 Special Topics in French Literature (3) Prerequisite: FREN351 or FREN352; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs.

FREN 499 Special Topics in French Studies (3) Repeatable to 6 credits if content differs. An aspect of French studies, the specific topic to be announced each time the course is offered.

GEMS -- Gemstone

GEMS 100 Freshman Honors Colloquium: Introduction to Gemstone (1) Restriction: Freshman standing; and must be in the Gemstone program. Orienting new Gemstone students to the university and to the program through a variety of team building activities, resources, and skill exploration exercises. Students will also examine and discuss areas such as liberal education, diversity, service, arts, current events, academic integrity, and leadership style.

GEMS 102 Research Topic Exploration and Team Formation (1) Restriction: Must be in the Gemstone program. Under the guidance of staff and visiting speakers, students will develop research topics that they will pursue for the remainder of their participation in the Gemstone program, and form into interdisciplinary teams around these topics.

GEMS 104 Topics in Science, Technology and Society (STS) (3) Prerequisite: GEMS100. Restriction: Must be in the Gemstone program. An examination of how cultural, economic, political and social forces shape scientific and technological systems and, conversely, how scientific and technological systems have affected the culture, economies, organization and politics of societies. Students in the course will form small teams to carry out semester-long research on socio/technical topics related to the course theme chosen for that specific semester.

GEMS 202 Team Dynamics and Research Methodology (2) Prerequisite: GEMS100, GEMS102, and GEMS104. Corequisite: GEMS296. Restriction: Must be in the Gemstone program; and sophomore standing or higher. This experiential course is designed to foster an understanding of effective team dynamics and basic research methodology. It will teach skills applicable to Gemstone team research and the writing of a team thesis. Upperclass Gemstone students serve as discussion facilitators. Students participate in their Gemstone teams and develop a draft of their team thesis proposal.

GEMS 208 Special Topics in Leadership and Team Development (1-3) Restriction: Must be in the Gemstone program. Principles, methods and types of leadership and team development with an emphasis on group discussion and decision making. Reading, discussion and exploration of the basic team concept, communications for winning scenarios, goal setting, problem solving, conflict resolution and research methods.

GEMS 296 Team Project Seminar I (1) Prerequisite: GEMS100, GEMS102, and GEMS104. Corequisite: GEMS202. Restriction: Must be in the Gemstone program with sophomore standing in a research team. This is the first of six seminars during which Gemstone students carry out multidisciplinary research with the guidance of a faculty mentor. The teams develop their working relationship, start their literature search, define their research question, and set short & long term goals.

GEMS 297 Team Project Seminar II (2) Restriction: Must be in the Gemstone program with sophomore standing in a research team. This is the second of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team develops its website, prepares and presents its research proposal and beegins its research project.

GEMS 396 Team Project Seminar III (2) Prerequisite: GEMS297. Restriction: Must be in the Gemstone program with junior standing in a research team. This is the third of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team presents its progress at the Gemstone Colloquia.

GEMS 397 Team Project Seminar IV (2) Prerequisite: GEMS396. Restriction: Must be in the Gemstone program with junior standing in a research team. This is the fourth of six seminars during which Gemstone students carry out interdisciplinary research with the guidance of a faculty mentor. The team further develops its website. Also they will prepare and present the team project in the poster session of Undergraduate Research Day.

GEMS 496 Project Writing Seminar (2) Prerequisite: GEMS397. Restriction: Must be in the Gemstone program. This is the fifth of six seminars during which Gemstone students carry out research with the guidance of a faculty mentor. The team finishes the analysis of their data and writes and edits its team thesis.

GEMS 497 Team Thesis Defense (2) Prerequisite: GEMS396. Restriction: Must be in the Gemstone program. Gemstone teams will complete the team research project and thesis. The team will formally present the thesis to experts in the area of interest at a Team Thesis Conference before final submission.

GEOG -- Geographical Sciences

GEOG 100 Introduction to Geography (3) An introduction to the broad field of geography as it is applicable to the general education student. The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues.

GEOG 110 The World Today: Global Perspectives (3) The most critical issue facing the world today is the sustainability of both human and physical systems in the 21st century. This class uses the context of regions of the world to explore the 21st century issues of climate change, development, politics, economy, and demography. Each region will be used to highlight aspects of sustainability.

GEOG 123 Causes and Implications of Global Change (3) Also offered as: AOSC123, GEOL123. Credit only granted for: AOSC123, GEOG123, GEOL123, or METO123. A unique experience in integrating physical, chemical, geological, and biological sciences with geographical, economic, sociological, and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long- term

variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow human endeavors. The manner in which to approach decision and policy making related to global change.

GEOG 130 Developing Countries (3) An introduction to the geographic characteristics of the development problems and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.

GEOG 140 Natural Disasters: Earthquakes, Floods, and Fires (3) Catastrophic Environmental Events (CCE) that are becoming more common in this time of global environmental change and it is essential that today's students be equipped with the knowledge and skills to be leaders as we, as a society, understand the upheaval that these CCEs are causing. Students will examine how CEEs shape human society and ecosystem from the interdisciplinary perspective afforded by the field of Geography. Students will use the latest geographic science concepts and techniques in exploring these events. Using satellite imagery they will gain a multi-scale perspective of the ecological and societal aspects of the events.

GEOG 158 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 170 Introduction to Methods of Geospatial Intelligence and Analysis (3) Introduction to technical methods used in gathering, analyzing, and presenting geospatial information, addressing the needs of geospatial analysis, such as environmental monitoring, situational awareness, disaster management, and human systems. Topics include basics of locational reference systems, map projections, satellite and airborne remote sensing, global positioning systems, geographic information systems, cartography, and introductory statistics and probability. The course is a gateway to more advanced technical classes in geoinformatics.

GEOG 201 Geography of Environmental Systems (3) A systematic introduction to the processes and associated forms of the atmosphere and earth's surfaces emphasizing the interaction between climatology, hydrology and geomorphology.

GEOG 202 Introduction to Human Geography (3) Introduction to what geographers do and how they do it. Systematic study of issues regarding social and cultural systems from a global to a local scale. Looks at the distribution of these variables and answers the question "Why here, and not there"?

GEOG 211 Geography of Environmental Systems Laboratory (1) Prerequisite: Must have completed or be concurrently enrolled in GEOL120, GEOL100, or GEOG201. A laboratory course to accompany GEOG 201. Analysis of the components of the earth's energy balance using basic instrumentation; weather map interpretation; soil analysis; the application of map and air photo interpretation techniques to landform analysis.

GEOG 212 Career Planning for Geographical Sciences, GIS, and ENSP Majors (1) Restriction: Must be in one of the following programs (Geography; GEOG-GIS & Computer Cartography). Increase student knowledge of professional development opportunities in Geographical Sciences through classroom activities and invited speakers, and to build awareness of career development tools and strategies.

GEOG 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 301 Advanced Geographical Environmental Systems (3) Prerequisite: GEOG201 and GEOG211. Credit only granted for: GEOG398B or GEOG301. Formerly: GEOG398B. This course will provide the students with an overview of the key elements of physical geography, including biogeography (factors and processes that control the geographical distributions of plants and animals, climatology (processes associated with controlling variations in weather and climate), and geomorphology (factors and processes that control changes to the physical structure of the earth surface in relation to geological structures).

GEOG 306 Introduction to Quantitative Methods for the Geographic Environmental Sciences (3) Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Essentials in the quantitative analysis of spatial and other data, with a particular emphasis on statistics and programming. Topics include data display, data description and summary, statistical inference and significance tests, analysis of variance, correlation, regression, and some advanced concepts, such as matrix methods, principal component analysis, and spatial statistics. Students will develop expertise in data analysis using advanced statistical software.

GEOG 310 Maryland and Adjacent Areas (3) Credit only granted for: GEOG310 or GEOG321. Formerly: GEOG321. The physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the State of Maryland and adjacent areas.

GEOG 312 The United States and Canada (3) Credit only granted for: GEOG312 or GEOG320. Formerly: GEOG320. The two countries as functioning geographic systems with important differences and key linkages. An examination of the cultural, environmental, and economic components and their spatial variation. Attention to the role of regions in national economies.

GEOG 328 Topics in Regional Geography (3) Repeatable to 6 credits if content differs. Selected topics in regional geography.

GEOG 330 As the World Turns: Society and Sustainability in a Time of Great Change (3) Credit only granted for: GEOG330, GEOG360, or GEOG362. Formerly: GEOG362. Cultural geography course on society and sustainability. Culture is the basic building block that is key to sustainability of societies. Course will cover sustainability of societies on different scales, examining local, regional, and worldwide issues. Sustainability will be examined as a key element of environmental sustainability. How societies adjust to rapid world change will be examined as a positive and/or negative factor in sustainability.

GEOG 331 Introduction to Human Dimensions of Global Change (3) Prerequisite: ANTH220, ANTH260, GEOG202, or GEOG201; or permission of BSOS-Geography department. Credit only granted for: GEOG331 or GEOG361. Formerly: GEOG361. Introduction to global-scale interrelationship between human beings and the environment. The development of global issues including but not limited to the environment, food, energy, technology, population, and policy.

GEOG 332 Economic Geography (3) Credit only granted for: GEOG203, GEOG303, or GEOG332. Formerly: GEOG303. Principles of managing scarce resources in a world where everyone faces tradeoffs across both time and space. Focuses on the relationship between globalization processes and changing

patterns of locational advantages, production, trade, population, socioeconomic and environmental grace and sustainability.

GEOG 333 The Social Geography of Metropolitan Areas in Global Perspective (3) Prerequisite: Permission of BSOS-Geography department; or (GEOG201 and GEOG202). Credit only granted for: GEOG456 or GEOG333. Formerly: GEOG456. A socio-spatial approach to human interaction within the urban environments: ways people perceive, define, behave in, and structure world cities and metropolitan areas. Cultural and social differences define spatial patterns of social activities which further define distinctions in distribution and interaction of people and their social institutions.

GEOG 334 The American City: Past and Present (3) Credit only granted for: GEOG334 or GEOG350. Formerly: GEOG350. Development of the American city from the early 19th century to the present. The internal structure of contemporary metropolitan areas, the spatial arrangement of residential, commercial, and other activities. Washington, D.C. and Baltimore examples.

GEOG 335 Population Geography (3) Prerequisite: Permission of BSOS-Geography department. Or GEOG201; and GEOG202. Credit only granted for: GEOG435 or GEOG335. Formerly: GEOG435. The spatial characteristics of population distribution and growth, migration, fertility and mortality from a global perspective. Basic population-environmental relationships; carrying capacity, density, and relationships to national development.

GEOG 340 Geomorphology (3) Survey of landform types and role of processes in their generation. Frequency of occurrence and implications for land utilization. Emphasis on coastal, fluvial, and glacial landforms in different environmental settings. Landform regions of Maryland.

GEOG 342 Introduction to Biogeography (3) Prerequisite: GEOG201. Recommended: GEOG211. Credit only granted for: GEOG342 or GEOG347. Formerly: GEOG347. The principles of biogeography, including the patterns, processes and distributions of living organisms from local to global scales, aspects of ecophysiology, population and community ecology and evolutionary biology. Spatial processes in the biosphere will be covered.

GEOG 345 Introduction to Climatology (3) The geographic aspects of climate with emphasis on energy-moisture budgets, steady-state and non steady-state climatology, and climatic variations at both macro-and micro-scales.

GEOG 346 Cycles in the Earth System (3) Prerequisite: GEOG123, AOSC123, GEOL123, or MATH140; or permission of BSOS-Geography department. Recommended: PHYS171, PHYS141, PHYS161, or MATH141. Also offered as: AOSC346, GEOL346. Credit only granted for: AOSC346, GEOG346, or GEOL346. The Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

GEOG 358 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 372 Remote Sensing (3) Principles of remote sensing in relation to photographic, thermal infrared and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.

GEOG 373 Geographic Information Systems (3) Characteristics and organization of geographic data; creation and use of digital geospatial databases; metadata; spatial data models for thematic mapping and map analysis; use of geographic information system in society, government, and business. Practical training with use of advanced software and geographic databases.

GEOG 376 Introduction to Computer Programming for GIS (3) Prerequisite: Must have completed or be concurrently enrolled in MATH120, MATH130, or MATH140; or must have completed MATH220. And GEOG373; or permission of BSOS-Geography department. Introduces conceptual and practical aspects of programming for geographic applications. The main focus is on developing a solid understanding of basic programming techniques irrespective of the specific programming language including variables, looping, conditional statements, nesting, math, strings, and other concepts. In addition, students will develop a proficiency in applying these basic programming principles to manipulating spatial data sources within the Geographic Information Systems (GIS).

GEOG 384 Internship in Geography I (3) Prerequisite: GEOG211, GEOG306, GEOG212, and GEOG201; and (ENGL393 or ENGL390). Restriction: Must be in Geography program. Supervised field training to provide career experience. Introduction to professional level activities, demands, opportunities. Placement at a public agency, non-profit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 385 Internship in Geography II (3) Prerequisite: GEOG211, GEOG306, GEOG212, and GEOG201; and must have completed a Junior (Professional) English course. Restriction: Must be in Geography program. Supervised field training to provide career experience. Introduction to professional-level activities, demands, opportunities. Placement at a public agency, nonprofit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 396 Honors Research (3) Restriction: Permission of BSOS-Geography department; and senior standing or higher; and must be in Geography program. Formerly: GEOG397. First course in the departmental honors sequence. Student development of a potential research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.

GEOG 397 Honors Thesis (3) Prerequisite: GEOG396. Restriction: Must be in Geography program; and senior standing or higher. Formerly: GEOG399. Second course in the departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.

GEOG 398 Special Topics in Geography (1-3) Restriction: Permission of BSOS-Geography department. Repeatable to 6 credits if content differs. Credit only granted for: GEOG298 or GEOG398. Formerly: GEOG298. An introductory course dealing with special topics in geography.

GEOG 410 Washington, D.C.: Past and Present (3) Credit only granted for: GEOG410 or GEOG454. Formerly: GEOG454. This course is designed as a field study of Washington, D.C. from its origin as the Federal Capital to its role in the development of the metropolitan area. Through lectures and extensive field trips, the course will focus on the symbiosis and interrelation of Washington, D.C. and its region: historical, socio-economic, spatial and environmental.

GEOG 413 Migration: Latin America and the United States (3) Prerequisite: GEOG313; or permission of BSOS-Geography department. Recommended: HIST250; or USLT201; or LASC234. Credit only granted for: GEOG413, or GEOG498M. Formerly: GEOG498M. Develops an understanding of the push and pull factors that have contributed to human mobility (migration) that has transformed the Americas. The class is divided in two parts: immigration and emigration from Latin American and Latin America migration to the United States. We will be interested in studying the migration shifts that have occurred in Latin America and the theories that help explain them. The themes that will be addressed are the history of migration with Latin America and to North America, the impact of this migration on both sending and receiving countries, and the various policy strategies and issues concerning migration.

GEOG 415 Land Use, Climate Change, and Sustainability (3) Prerequisite: GEOG123 or GEOG306; or permission of BSOS-Geography department. Recommended: GEOG340; or GEOG342; or GEOG331. Or GEOG201; and GEOG211. Credit only granted for: GEOG415 or GEOG498D. Formerly: GEOG498D. The issues of climate change and land use change as two interlinked global and regional environmental issues and their implications for society and resource use are explored.

GEOG 416 Conceptualizing and Modeling Human-Environmental Interactions (3) Prerequisite: Permission of BSOS-Geography department. Or GEOG306, STAT100, MATH107, or MATH111; and (GEOG201 and GEOG202); and (GEOG331 or GEOG330). Corequisite: MATH130, MATH140, or MATH120; or MATH220. Credit only granted for: GEOG416 or GEOG498N. Formerly: GEOG498N. Develops skills to carry out research that integrates environmental and economic aspects of sustainability by introducing extensively used quantitative tools for analyzing human-environmental interactions in the field of ecological economics. These include, e.g., index number calculations and decomposition analysis, Environmental Kuznets Curve (EKC), environmental input-output analysis and life-cycle analysis, and multi-criteria decisions aid (MCDA). Students will need laptops to run models during class.

GEOG 417 Land Cover Characterization Using Multi-Spectral Remotely Sensed Data Sets (3) Prerequisite: Permission of BSOS-Geography department. Or GEOG372; and GEOG472; and GEOG306. Also offered as: GEOG417. Credit only granted for: GEOG498R; GEOG788R; GEOG417; GEOG617. Formerly: GEOG498R. Students will be introduced to the image processing steps required for characterizing land cover extent and change. Key components of land cover characterization, including image interpretation, algorithm implementation, feature space selection, thematic output definition, and scripting will be discussed and implemented.

GEOG 418 Field and Laboratory Techniques in Environmental Science (1-3) Restriction: Permission of BSOS-Geography department. Credit only granted for: GEOG418 or GEOG448. Formerly: GEOG448. Lecture and laboratory learning each week. A variable credit course that introduces field and laboratory analyses in environmental science. Individual learning contract are developed with instructor.

GEOG 431 Culture and Natural Resource Management (3) Credit only granted for: GEOG421 or GEOG431. Formerly: GEOG421. Basic issues concerning the natural history of humans from the perspective of the geographer. Basic components of selected behavioral and natural systems, their evolution and adaptation, and survival strategies.

GEOG 432 Spatial Econometrics (3) Prerequisite: Permission of BSOS-Geography department. Or GEOG201; and GEOG202; and GEOG306; and GEOG332. Also offered as: GEOG732. Credit only granted for: GEOG498E, GEOG432, GEOG788E, GEOG732. Formerly: GEOG498E. An introduction to modern econometric techniques in general and spatial econometrics in particular, using the popular open source statistical computer language R. A focus on using statistical computing to produce analytical reports for real-world applications, research papers, and dissertations.

GEOG 437 Political Geography (3) Credit only granted for: GEOG423 or GEOG437. Formerly: GEOG423. Geographical factors in the national power and international relations; an analysis of the role of geopolitics and geostrategy, with special reference to the current world scene.

GEOG 438 Seminar in Human Geography (3) Recommended: GEOG201; or GEOG211. Restriction: Permission of BSOS-Geography department. Repeatable to 6 credits if content differs. Selected topics in human geography.

GEOG 441 The Coastal Ocean (3) Prerequisite: GEOG140; or students who have taken courses with comparable content may contact the department; or permission of BSOS-Geography department. Credit only granted for: GEOG441 or GEOG498C. Formerly: GEOG498C. Introduction to coastal oceanography, focusing on the physical, biological, and geological aspects of ocean areqs on the inner continental shelves. Wave, currents, and tidal dynamics of bays, open coast, estuaries, and deltas. Sedimentary environments of major coastal types. Ecology and biogeochemical relationships, including benthic and planktonic characteristics. Coastal evolution with sea level rise. Human impacts: eutrophication, modification of sedimentation. The coastal future: rising sea level, hypoxia, and increased storminess.

GEOG 442 Biogeography and Environmental Change (3) Prerequisite: GEOG301. And GEOG201 and GEOG211; or permission of BSOS-Geography department. Also offered as: GEOG642. Credit only granted for: GEOG642, GEOG442, GEOG447, or GEOG484. Formerly: GEOG447. Biogeographical topics of global significance, including a consideration of measurement techniques, and both descriptive and mechanistic modeling. Topics may include: scale in biogeography, biodiversity, carbon geography, climate and vegetation, interannual variability in the biosphere, land cover, global biospheric responses to climate change, NASA's Mission to Planet Earth and Earth Observation System. The class focuses on both natural and athropogenic controls, impacts of biography on climate and ecosystem services and different methods in biogeography.

GEOG 445 Climatology (3) Prerequisite: GEOG345. Credit only granted for: GEOG445 or GEOG446. Formerly: GEOG446. Quantitative investigations into the Earth's radiation balance, water cycle, and the interrelationship of climate and vegetation. Methodologies in climate research. Case studies related to global climatic change.

GEOG 458 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GEOG 472 Remote Sensing: Digital Processing and Analysis (3) Prerequisite: GEOG372 and GEOG306; or students who have taken courses with comparable content may contact the department. Credit only granted for: GEOG472 or GEOG480. Formerly: GEOG480. Digital image processing and analysis applied to satellite and aircraft land remote sensing data. Consideration is given to preprocessing steps including calibration and geo registration. Analysis methods include digital image exploration, feature extraction thematic classification, change detection, and biophysical characterization. One or more application examples may be reviewed.

GEOG 473 Geographic Information Systems and Spatial Analysis (3) Prerequisite: GEOG306 and GEOG373; or students who have taken courses with comparable content may contact the department. Credit only granted for: GEOG473 or GEOG482. Formerly: GEOG482. Analytical uses of geographic information systems; data models for building geographic data bases; types of geographic data and spatial problems; practical experience using advanced software for thematic domains such as terrain analysis, land suitability modeling, demographic analysis, and transportation studies.

GEOG 475 Computer Cartography (3) Prerequisite: GEOG373 and GEOG306. Credit only granted for: GEOG471 or GEOG475. Formerly: GEOG471. Advanced skills of computer mapping using more sophisticated software packages. Map projection evaluation and selection, coordinate system conversion, techniques of quantitative thematic mapping, map design and generalization, hypermedia and animated cartography. Emphasis on designing and making cartographically sound sophisticated thematic maps.

GEOG 476 Object-Oriented Computer Programming for GIS (3) Prerequisite: GEOG373 and GEOG376; or permission of BSOS-Geography department. And must have completed MATH220; or must have completed or be concurrently enrolled in MATH120, MATH130, or MATH140. Restriction: Must be in Geography program; or must be in GIS minor. Credit only granted for: GEOG498G or GEOG476. Formerly: GEOG498G. Expands on conceptual and practical aspects of programming for geographic applications. The main focus of this course is to provide students more advanced programming in object oriented programming languages (i.e. Python). In addition, students will develop a proficiency in applying these advanced programming principles to manipulating spatial data sources within the Geographic Information Systems (GIS).

GEOG 477 Mobile GIS Development (3) Prerequisite: GEOG306, GEOG373, and GEOG376; and (GEOG473, GEOG475, or GEOG476). And MATH140 or MATH120; or must have completed MATH220. Restriction: Must be in a major within the BSOS-Geography department; or permission of BSOS-Geography department. Credit only granted for: Geog477 or Geog498V. Formerly: Geog498V. Designed as an introduction to mobile GIS, to the programming concepts underlying mobile GIS development, and more importantly, to the design and implement of a mobile GIS application. Covers how to develop, test, and publish mobile GIS native apps working across two mobile platforms: Android and iOS. This course will also try to leverage the capabilities of JavaScript, Swift, Google maps, ArcGIS Server and runtime SDK to developing and publishing mobile GIS web apps.

GEOG 498 Topical Investigations (1-3) Prerequisite: Restricted to advanced undergraduate students; and 24 credits in GEOG courses. Or restricted to graduate students. Repeatable to 6 credits if content differs. Independent study under individual guidance.

GEOL -- Geology

GEOL 100 Physical Geology (3) Credit only granted for: GEOL100 or GEOL120. Additional information: CORE Distributive Studies Physical Science Laboratory Course only when taken concurrently with GEOL 110. A general survey of the rocks and minerals composing the earth, its surface features and the agents that form them, and the dynamic forces of plate tectonics.

GEOL 102 Historical Geology (4) Prerequisite: GEOL120 or GEOL100; and GEOL110. Or permission of CMNS-Geology department. Earth's history as revealed through the principles of stratigraphy and the processes of physical geology. Emphasis on formations and geologic development of the North American continent.

GEOL 104 Dinosaurs: A Natural History (3) Dinosaurs, their evolution, and our understanding of their fossil record. Students will examine the geologic record and the tools used by paleontologists to determine: geologic ages and ancient environments; evolutionary history and extinctions; dinosaurian biology and behavior; and their survival as birds. Mechanisms of global change ranging from plate tectonics to asteroid impact will be discussed.

GEOL 110 Physical Geology Laboratory (1) Prerequisite: Must have completed or be concurrently enrolled in GEOL120 or GEOL100. Additional information: CORE Distributive Studies Physical Science

Laboratory Course only when taken concurrently with GEOL 100. The basic materials and tools of physical geology stressing familiarization with rocks and minerals and the use of maps in geologic interpretations.

GEOL 120 Environmental Geology (3) Credit only granted for: GEOL100 or GEOL120. A review of geologic factors underlying many environmental problems and the interactions between population and physical environment: geologic hazards, land-use planning, conservation, mineral resources, waste disposal, land reclamation, and the geologic aspects of health and disease. The course is aimed at lower division students in education and liberal arts, and should be useful to any student concerned with geologic perspectives of environmental problems.

GEOL 123 Causes and Consequences of Global Change (3) Also offered as: AOSC123. Credit only granted for: AOSC123, GEOG123, GEOL123, or METO123. Study of the major components of Earth's climate system and climate change history. Discussion of 21st century climate change prediction, mitigation and adaptation efforts.

GEOL 124 Evolution of Life and Environment on Planet Earth (3) An exploration of how life has shaped Earth's physical environments, both in the contemporary Earth and over the long course of Earth history. Topics range from evidence for the origin and diversification of life and its impact on Earth environments to the mind-set and methods of the scientists who interpret it, and what those methods tell us about future interactions between life and the environment, both on Earth and in the Solar System.

GEOL 200 Earth's Fury: Earthquakes, Volcanoes, and Tsunami (3) Earthquakes, volcanic eruptions, and tsunami frequently remind us of the dangers associated with living on a constantly changing planet. How do people prepare for these rare but dramatic events? Student will study the science behind earthquakes and volcanoes, how it guides monitoring, forecasting, prevention, and response, and the cultural and ethical aspects of these events.

GEOL 204 Dinosaurs, Early Humans, Ancestors, and Evolution; The Fossil Record of Vanished Worlds of the Prehistoric Past (3) Examination of evidence used to reconstruct critical events in the history of life by looking at case studies of significant evolutionary origins, transitions, and extinctions; addressing the role of paleontology in human society, including science education, conservation, and the media.

GEOL 212 Planetary Geology (3) Credit only granted for: ASTR330 or GEOL212. An examination of the geologic and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies.

GEOL 214 Global Energy Systems and Resources (3) Prerequisite: A course in the natural sciences, environmental policy, geography; possible courses include: CPSP123, ENSP101, ENSP102, GEOG100, GEOG201, GEOL100, GEOL120, MATH140, PHYS117, CHEM131, CHEM132, CHEM135, CHEM136, and CHEM103; or permission of instructor. Restriction: Permission of instructor is required of non-degree-seeking students. Focuses on energy systems and resources on a global scale. It addresses energy transfer in natural systems, distribution of energy resources in the natural world, and problems of efficiency and limited energy resources. It is appropriate for those interested in science and technical energy issues as well as policy, education and the media.

GEOL 224 Observations and Measurements of the Natural World (3) A scientific research team experience focused on evaluating environmental controls on water quality in urbanized streams of College Park. Training in field, laboratory, and digital visualization techniques to gain hands on

knowledge of the scientific method through detailed observations, measurements, manipulations, and interpretations of data gathered during the course.

GEOL 288 Field Studies I (1) Repeatable to 3 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves fieldwork of one week or longer duration, which work normally includes both observation and data collection. Particular programs may require certain prerequisites. Permission of Instructor is required. Special fees may be necessary.

GEOL 310 Forensic Geology and Homeland Security (3) Prerequisite: CHEM131 and GEOL100; and (MATH107 or MATH110). Or permission of CMNS-Geology department; or permission of instructor is required of non-degree seeking students. An introduction to the fundamentals of forensic science with special reference to the application of geological techniques, and to the applications of Earth science in understanding problems in homeland security and hazardous materials response.

GEOL 322 Mineralogy (4) Prerequisite: GEOL120 or GEOL100; and GEOL110. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. Restriction: Permission of instructor is required for non-degree seeking students. Basic mineralogy for geology majors. The principles of morphologic crystallography, crystal chemistry, and determinative mineralogy.

GEOL 329 Instructional Assistance Practicum (1-2) Undergraduate teaching assistantship in Geosciences. Individual instruction course. Contact department or instructor to obtain section number.

GEOL 331 Principles of Paleontology (4) Prerequisite: GEOL102; or (BSCI207 or BSCI392); or permission of CMNS-Geology department. Restriction: Permission of instructor is required of non-degree seeking students. Also offered as: BSCI333. Credit only granted for: GEOL331 or BSCI333. A review of the theory, principles, and applications of Paleontology. A systematic overview of the morphology, evolution, and relationships of the major fossil-producing taxa.

GEOL 340 Geomorphology (4) Prerequisite: GEOL120 or GEOL100. Restriction: Permission of instructor is required of non-degree seeking students. Analysis of landforms, organized on the basis of the geologic processes that have operated during the late Cenozoic. Constructional and erosional landforms related to physical systems operating on geologic structures through time.

GEOL 341 Structural Geology (4) Prerequisite: GEOL120 or GEOL100; and GEOL102; and GEOL110. Or permission of CMNS-Geology department. Restriction: Permission of instructor is required of non-degree seeking students. Study of the deformation of Earth's lithosphere, especially stress, rheology, strain, and the origin and significance of structural features. Development of 3-dimensional thinking through drafting and drawing of structures, construction of geologic maps and cross-sections, and stereographic and orthographic representation of structures. Improvement of scientific writing. Two weekend field trips.

GEOL 342 Sedimentation and Stratigraphy (4) Prerequisite: GEOL120 or GEOL100; and GEOL110; and GEOL322. And CHEM103; or (CHEM131 and CHEM132); or (CHEM135 and CHEM136). Restriction: Permission of instructor is required of non-degree-seeking students. Description, origin, and distribution of sediments and sedimentary rocks. Two mandatory weekend field trips.

GEOL 346 Cycles in the Earth System (3) Prerequisite: MATH140; and (GEOG123, AOSC123, or GEOL123). Or permission of CMNS-Geology department. Recommended: PHYS171, PHYS141, PHYS161, or MATH141. Restriction: Non-degree-seeking students require the permission of the instructor. Also offered as: AOSC346. Credit only granted for: AOSC346, GEOG346, or GEOL346. The

Earth System operates through some fundamental cycles such as water, energy, and the Carbon Cycle. This course will build on GEOL/GEOG/AOSC123 starting with concept of feedbacks within the Earth System, global energy balance and the Greenhouse Effect. A brief introduction to the atmospheric and oceanic circulation will lead to the water cycle connecting the land, ocean, and atmosphere to the Earth System. Introduction to the Global carbon, nitrogen, and sulfur cycles will be followed by the concept of long-term climate regulation and short-term climate variability. The concepts of cycles, feedbacks, forcings, and responses in the Earth System will be applied to Global Warming and Ozone Depletion.

GEOL 351 Statistics for Geoscientists (3) Prerequisite: MATH115. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Practical approach to basic statistics applied in the geosciences. Experimental design, elementary statistics and probability, sequence analysis, spatial analysis, linear regression, nonparametric statistics, bivariate, multivariate and principal components analysis of variance, hypothesis testing. Problem sets and participatory discussion of statistical applications in the current literature.

GEOL 375 Introduction to the Blue Ocean (3) Prerequisite: MATH140. Recommended: MATH141, PHYS161, or PHYS171. Restriction: Non-degree-seeking students require the permission of the instructor. Also offered as: AOSC375. Credit only granted for: AOSC375, GEOL375 or METO375. Introduction to physical, chemical, and biological properties of the ocean. Role of the ocean in climate as a component of the Earth system. El Nino and the ocean, impact of global warming on the ocean and marine habitats including fisheries.

GEOL 386 Experiential Learning (3-6) Prerequisite: Permission of CMNS-Geology department. Restriction: Junior standing or higher.

GEOL 388 Field Studies II (3) Restriction: Non-degree-seeking students require the permission of the instructor. Repeatable to 6 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves field work of one week or a longer duration, which would normally involve both observations and data collection, with associated classroom lectures and/or laboratory study, normally including additional analysis of collected observations and data. Particular programs may require certain prerequisites. Permission of instructor required. Special fees may be necessary.

GEOL 393 Geology Senior Thesis I: Proposal (3) Prerequisite: PHYS141 and MATH141. And CHEM131 and CHEM132; or (CHEM135 and CHEM136). And must have completed at least two upper-level geology courses and be concurrently enrolled in a third. Restriction: Junior standing or higher; and must be in Geology program; and non-degree-seeking students require the permission of the instructor. The first semester of the two-semester Geology Senior Thesis. Emphasis is on developing a plan for original research in the geosciences and presenting that plan both in writing and in public presentations that adhere to geosciences professional standards.

GEOL 394 Geology Senior Thesis II: Research (3) Prerequisite: GEOL393; and must have completed at least three upper level GEOL courses. Restriction: Must be in Geology program; and junior standing or higher; and in addition, non-degree-seeking students require the permission of the department. The second semester of the two-semester Geology Senior Thesis. Investigation of specific original research question in geosciences. Emphasis is on completion of original research proposed in GEOL393 and

presentation of results both in writing and in public presentations that adhere to geosciences professional standards.

GEOL 412 Geology of the Terrestrial Planets (3) Prerequisite: GEOL341 or GEOL340. Credit only granted for: GEOL489A or GEOL412. Formerly: GEOL489A. Geological features of Mercury, Venus, Mars and the Moon with an emphasis on results from recent NASA planetary mission. Topics include interior structure, impact cratering, tectonic and volcanic history, surface conditions, climate change, and habitability.

GEOL 423 Optical Mineralogy (4) Prerequisite: GEOL100 or GEOL120; and GEOL110; and GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. Restriction: Non-degree-seeking students require the permission of the instructor. The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope.

GEOL 431 Vertebrate Paleobiology (4) Prerequisite: BSCI207, BSCI392, GEOL104, GEOL204, or GEOL331; or permission of CMNS-Geology department. A survey of the evolution of the vertebrates, encompassing information from the diversity of living members, but concentrating on the contribution of the fossil record. Emphasis is on the phylogenetic systematics, comparative and functional anatomy, developmental biology, and stratigraphic distribution of major extinct and extant groups.

GEOL 435 Environmental Geochemistry (3) Prerequisite: MATH115; and (GEOL100 or GEOL120); and (GEOL436 or GEOL444). And CHEM131 and CHEM132; or (CHEM135 and CHEM136). Restriction: Nondegree-seeking students require the permission of the instructor. Credit only granted for: GEOL489W or GEOL435. Formerly: GEOL489W. An understanding of geochemical cycles of Earth's surface systems including soils, rivers, lakes, and estuaries and causes and implications of alteration of geochemical cycles. Topics include chemical weathering, soils, chemical composition of inland waters, hydrologic tracers, salinization, eutrophication, nutrient and metal pollution, and global geochemical cycles.

GEOL 436 Principles of Biogeochemistry (3) Prerequisite: MATH140 or MATH120; or must have completed MATH220. And GEOL100 or GEOL120; or GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136). Restriction: Non-degree-seeking students require the permission of the instructor. Also offered as: AOSC436. Credit only granted for: GEOL436 or AOSC436. An introduction to the basic principles of biogeochemistry including aspects of organic geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.

GEOL 437 Global Climate Change: Past and Present (3) Prerequisite: MATH115 or MATH140; and (GEOL100 or GEOL120); and (CHEM131 or CHEM135); and (CHEM132 or CHEM136). Introduction to the processes by which climate varies, the paleoclimate record, and projections of climate change into the 21st century, including discussion of climate sensitivity to external radiative forcing.

GEOL 443 Petrology (4) Prerequisite: GEOL322. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. And must have completed or be concurrently enrolled in GEOL423; and (GEOL100 or GEOL120); and GEOL110. Corequisite: Permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Study of igneous and metamorphic rocks: petrogenesis, distributions, chemical and mineralogical relations, macroscopic and microscopic descriptions, geologic significance.

GEOL 444 Low Temperature Geochemistry (4) Prerequisite: GEOL322, GEOL100, and MATH115. And CHEM103; or (CHEM131 and CHEM132); or (CHEM135 and CHEM136). Restriction: Non-

degree-seeking students require the permission of the instructor. Basic chemical principles, thermodynamics, and kinetics of low-temperature inorganic and organic geochemical reactions in a wide range of surface environments. These geochemical tools will be used to provide a context for understanding elemental cycling and climate change. Laboratories will include problem sets as well as wet chemical and mass spectrometric techniques used in low temperature geochemistry.

GEOL 445 High Temperature Geochemistry (4) Prerequisite: GEOL322, GEOL100, and MATH115. And CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. Restriction: Non-degree-seeking students require the permission of the instructor. Review of chemical principles and their use in understanding processes of Earth, and solar system formation and differentiation. Topics include nucleosynthesis and cosmochemical abundances of elements, bonding and element partitioning, equilibrium thermodynamics and phase stabilities, radiogenic isotopes and geochronology, kinetics, and diffusion.

GEOL 446 Geophysics (3) Prerequisite: PHYS141, MATH141, and MATH140; and (GEOL100 or GEOL120). Restriction: Non-degree-seeking students require the permission of the instructor. An introduction to modern geophysics. Topics include: global plate tectonics, plate motion, triple junctions, geomagnetism, earthquakes and faulting, reflection and refraction seismology, gravity and isostasy, heat flow and mantle dynamics, deep interior of the Earth, geophysical observations and measurements.

GEOL 447 Observational Geophysics (3) Prerequisite: MATH140 and MATH141; and (PHYS141, PHYS161, or PHYS171). An introduction to practical signal processing, data analysis, and inverse theory in geophysics.

GEOL 451 Groundwater (3) Prerequisite: GEOL110 and MATH140; and (GEOL120 or GEOL100); and (CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor; and junior standing or higher. An introduction to the basic geologic parameters associated with the hydrologic cycle. Problems in the accumulation, distribution, and movement of groundwater will be analyzed.

GEOL 452 Watershed and Wetland Hydrology (3) Prerequisite: Permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor; and junior standing or higher. Physical processes by which water moves in watershed and wetland systems. Topics include: precipitation, infiltration, flow in the unsaturated zone, streamflow generation processes, and groundwater flow.

GEOL 453 Ecosystem Restoration (3) Prerequisite: MATH120 or MATH140; or must have completed MATH220. And (CHEM131 or CHEM135); and (CHEM132 or CHEM136); and (GEOL100, GEOL120, or ENST200). Restriction: Junior standing or higher; and permission of instructor is required of non-degree-seeking students. Credit only granted for: GEOL453 or GEOL489L. Formerly: GEOL489L. Overview of ecosystem functions across biomes/geologic settings, and considerations and tradeoffs in ecosystem restoration strategies. Specific case studies and discussions will be aimed at understanding how structure can influence biophysical and biogeochemical processes supporting ecosystems, and then describes how rates, timing, and location of physical, chemical, and ecosystem processes can be altered by different restoration strategies to enhance ecosystem services.

GEOL 455 Marine Geophysics (3) Prerequisite: MATH141 and MATH140; and (GEOL120 or GEOL100). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL455 or GEOL489E. Formerly:

GEOL489E. Plate tectonics, earthquakes and faulting, isostasy and gravity, heat and mantle dynamics, ocean ridges and transform faults, hydrothermal vents, trenches and oceanic islands, subduction zones, accretionary and erosion wedges, sedimentary basins and continental rifts. Exploration of the oceans using geophysical methods.

GEOL 456 Engineering Geology (3) Prerequisite: PHYS141 and MATH141; and (GEOL120 or GEOL100). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL456 or GEOL489Z. Formerly: GEOL489Z. An overview of engineering geology with an emphasis on physical understanding of natural hazards and natural resources. General theories of stress and strain, failure criteria, frictional stability, fluid flow in porous media and poroelasticity are introduced. Quantitative approaches on earthquakes, landslides, land subsidence, and geotechnical aspects of oil/gas exploration are discussed.

GEOL 457 Seismology (3) Prerequisite: GEOL120 or GEOL100; and (MATH141, GEOL110, and MATH140). Or permission of CMNS-Geology department. Recommended: PHYS171, PHYS141, or PHYS161. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL457 or GEOL489A. Formerly: GEOL489A. General overview of the basics of seismology, starting with wave propagation, seismic reflection and refraction. Applications to the determination of the seismic velocity and anisotropy structure of the Earth. Earthquake generation, postseismic deformation and creep events, relation to faulting and plate tectonics.

GEOL 460 Field Geophysics (4) Prerequisite: MATH140, MATH141, and GEOL446; and (PHYS141, PHYS161, or PHYS171). Restriction: Non-degree-seeking students require the permission of the instructor. Students will become familiar with geophysical instrumentation used for both scientific and industrial applications. Students will be given an introduction to the use of geophysical instrumentation for data collection, processing, and analysis, design of field experiments for investigating field geophysical problems, and an introduction to the theory of instrument design and use. Instruments that will be covered include (but are not limited to): broadband seismometers, geophones, ground-penetrating radar, magnetotellurics, and Global Positioning Satellites.

GEOL 463 Economic Geology (3) Prerequisite: GEOL322; and (CHEM131 or CHEM135); and (CHEM132 or CHEM136). Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL489Q or GEOL463. Formerly: GEOL489Q. The geological setting, and mineralogy of ore bodies, as well as the chemical and physical factors affecting the source, transport and deposition of metallic ores, petroleum and natural gas will be covered. The economics of mineral resources will be discussed.

GEOL 471 Geochemical Methods of Analysis (3) Prerequisite: CHEM131 and CHEM132; or (CHEM135 and CHEM136); or CHEM103. Restriction: Non-degree-seeking students require the permission of the instructor. Principles and application of geochemical analysis as applied to a variety of geological problems. X-ray and optical spectroscopy, X-ray diffraction, atomic absorption, electron microprobe, and electron microscopy.

GEOL 472 Tectonics (3) Prerequisite: GEOL120 or GEOL100; and (GEOL102, GEOL341, and GEOL110). Or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Study of the development of the lithosphere on Earth and other rocky planets and moons. Emphasis on student-led discussions. Improvement of scientific writing.

GEOL 473 Origin and Evolution of the Continents (3) Prerequisite: GEOL445 and GEOL443; or permission of instructor. Restriction: Non-degree-seeking students require the permission of the

instructor. Formerly: GEOL489I. Introduction to current theories regarding the origin and evolution of the continents. Emphasis on development of critical reading and reasoning skills, and improvement of verbal and written communication.

GEOL 488 Geology Colloquium (1) Prerequisite: At least one 300 or 400-level Geology course of at least 3 credits. Restriction: May not be taken concurrently with GEOL497 or GEOL497H. Repeatable to 4 credits. Contemporary research topics and issues in geosciences are explored through the weekly Geology departmental colloquium and discussion of its contents.

GEOL 489 Special Topics (3) Prerequisite: Must have completed at least 2 upper-level GEOL courses plus one additional GEOL course. Corequisite: GEOL393. Restriction: Must be in Geology program; and junior standing or higher. Recent advances in geology.

GEOL 490 Geology Field Camp (6) Prerequisite: GEOL341 and GEOL443. Restriction: Non-degree-seeking students require the permission of the instructor. Intense field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrops, subsurface, and remotely sensed data. Special fees required.

GEOL 491 Environmental Geology Field Camp (3-6) Prerequisite: GEOL341, GEOL342, and GEOL451; or permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Credit only granted for: GEOL490 or GEOL491. Intensive field course designed for students of environmental geology. Students will learn to make maps, to describe soil profiles and site characteristics, to monitor hydrologic and groundwater conditions, and to measure geologic structures and stratigraphic sections.

GEOL 497 Recent Advances: Geology (3) Prerequisite: Must have completed at least 2 upper-level GEOL courses. Corequisite: GEOL393; and a third upper-level geology course. Restriction: Must be in Geology program; and GPA of 3.0 or better in both overall and in all courses required for the major; and senior standing; and to be taken as late as possible in the program. Credit only granted for: GEOL497 or GEOL489H. Formerly: GEOL489H. A survey of important recent advances in geological sciences in the context of the methods and practices of scientific research.

GEOL 499 Special Problems in Geology (1-3) Prerequisite: (GEOL120 or GEOL100; and (GEOL102 and GEOL110)); or students who have taken courses with comparable content may contact the department. And permission of CMNS-Geology department. Restriction: Non-degree-seeking students require the permission of the instructor. Intensive study of a special geologic subject or technique selected after consultation with instructor. Intended to provide training or instruction not available in other courses which will aid the student's development in his or her field of major interest.

GERM -- Germanic Studies

GERM 101 Elementary German I (4) Introduction to basic structures and pronunciation by emphasis on the four skills: listening, speaking, reading and writing. Readings concern the current lifestyle and civilization of the German-speaking world.

GERM 102 Elementary German II (4) Prerequisite: GERM101; or students who have taken courses with comparable content may contact the department. A continuation of GERM 101, completing the introduction of basic structures and continuing the involvement with the civilization of the German-speaking world.

GERM 103 Intensive Elementary German (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed GERM102; and must not be a fluent/native speaker of German. Credit only granted for: GERM102 or GERM103. Covers speaking, reading, writing, listening, and culture of German-speaking world.

GERM 148 Germanic Languages - Elementary I (3) Repeatable to 6 credits if content differs. Basic instruction in a Germanic language other than German; Yiddish and Swedish are offered regularly, Danish, Netherlandic, and Norwegian when demand is sufficient. Subtitle will reflect the language. May be repeated in a different language.

GERM 149 Germanic Languages - Elementary II (3) Prerequisite: GERM148. Continuation of GERM148. May be repeated in a different language. Subtitle will reflect the language.

GERM 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GERM 203 Intensive Intermediate German (4) Prerequisite: GERM103; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed GERM201; and must not have completed GERM202; and must not be a fluent/native speaker of German. Credit only granted for: GERM202 or GERM203. Covers speaking, reading, writing, listening, and culture of German-speaking world.

GERM 204 German Grammar Review (3) Prerequisite: GERM203; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a fluent/native speaker of German. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

GERM 248 Germanic Languages Intermediate - I (3) Prerequisite: GERM149. Intermediate instruction in a Germanic language other than German. May be repeated in a different language. Subtitle will reflect the language.

GERM 249 Germanic Languages - Intermediate II (3) Prerequisite: GERM248. Continuation of GERM248. May be repeated in a different language. Subtitle will reflect the language.

GERM 255 Once Upon a Time: Fairy Tales of the Brothers Grimm (3) Credit only granted for: GERM255 or GERM289G. Formerly: GERM289G. Additional information: Course is taught in English. A critical examination of how fairy tales and folklore pervade and influence diverse facets of Western culture, ranging from issues of politics and national identity, ethics and morality, violence and fear, education and pedagogy, to gender and sexuality in the establishment and regulation of social norms. Taking the German tales collected by Jacob and Wilhelm Grimm as its focal point, the magical and often terrifying world of fairy tales within the German, European, and American cultural traditions from Romanticism to today will be explored.

GERM 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GERM 281 Women in German Literature and Society (3) Also offered as: WMST281. Credit only granted for: GERM281 or WMST281. A study of changing literary images and social roles of women from the beginning of the 19th century to the present. Taught in English.

GERM 282 Germanic Mythology (3) An introduction to the religious beliefs of the pagan Germanic peoples. Comparison of Germanic myths with those of other Indo-European peoples. The conversion of the Germania to Christianity and the preservation of pagan beliefs in superstition and literature. Taught in English.

GERM 283 Viking Culture and Civilization (3) An introduction to the lifestyle of northern Europe in the 9th to 11th centuries. Taught in English.

GERM 284 German Chivalric Culture (3) An introduction to the lifestyle of northern Europe in the 12th to 14th centuries. Taught in English.

GERM 287 Ancient Celtic Culture and Civilization (3) An introduction to the culture and civilization of the Ancient Celts; religion, arts, ethics and law of the continental and island Celts. Focus on the Ulster and Fenian cycles in Ireland; Taliesin, Aneirin and the Mabinogion in Wales. Reconstruction of the lifestyle of the period. Taught in English.

GERM 289 Selected Topics in the Cultures of the Germanic Speaking Countries (3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Topics in the cultures of the Germanic speaking countries.

GERM 299 Special Topics in Germanic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs.

GERM 301 Conversation and Composition I: The German-Speaking World (3) Prerequisite: GERM204; or students who have taken courses with comparable content may contact the department. Practice in contemporary spoken and written German. Systematic review of grammar, and exercises in composition. Emphasis on cultural contrasts in the German-speaking world.

GERM 302 Conversation and Composition II: Current Topics in German-Speaking Society (3) Prerequisite: GERM301; or students who have taken courses with comparable content may contact the department. Further practice in contemporary spoken and written German. Contemporary social, political, and cultural themes.

GERM 315 Practicum in Translation I (3) Prerequisite: GERM301; or students who have taken courses with comparable content may contact the department. Problems and strategies of translation from German to English.

GERM 316 Practicum in Translation II (3) Prerequisite: GERM315; or students who have taken courses with comparable content may contact the department. Continuation of problems and strategies of translation from English to German and German to English.

GERM 319 Selected Topics in Germanic Language Studies (1-3) Prerequisite: GERM203; or students who have taken courses with comparable content may contact the department. Repeatable to 6 credits if content differs.

GERM 320 Survey of German Studies (3) Prerequisite: GERM301; or students who have taken courses with comparable content may contact the department. Approaches to analysis of German cultural products such as literature, film, poetry, architecture and works of art. Taught in German.

GERM 322 Highlights of German Literature and Culture (3) Prerequisite: GERM302; or students who have taken courses with comparable content may contact the department. Selected literary masterworks, social and cultural issues, and historical events in German-speaking countries from the Enlightenment, Romanticism, Junges Deutschland, Realism, Naturalism and its counter currents, Expressionism to the present. Taught in German.

GERM 331 Kafka and Film: The Uncanny in Literature and Film (3) Also offered as: FILM331. Credit only granted for: GERM331, FILM331, or HONR348K. Analysis of major works by Franz Kafka (1883-1924), his affinity to the cinema and use of cinematic means and techniques (e.g. the gaze, flashback, parallel action, gesture and body language, etc.) in his writings, as well as examination of adaptations of Kafka narratives (e.g. the Orson Welles and David Jones adaptations of 'The Trial,' 1961, 1992) and other films that use Kafkaian themes (e.g. Steven Soderbergh's 'Kafka,' 1991).

GERM 339 German Literature In Translation (3) Repeatable to 6 credits if content differs. Selected movements, genres or other special topics in German literature. Readings and instruction in English. May not be counted in the fulfillment of German major requirements in German literature.

GERM 349 Germanic Literatures in Translation (3) Repeatable to 6 credits if content differs. Study of an important author, period or theme in a Germanic literature other than German: Yiddish, Netherlandic or Scandinavian. Taught in English.

GERM 368 Scandinavian Civilization (3) Repeatable to 6 credits if content differs. Literary, artistic and historic traditions, folklore and superstition, customs and lifestyle shared by Scandinavian nations. Taught in English.

GERM 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GERM 382 German-Speaking Civilization (3) Overview of the development of German, Austrian and Swiss civilizations from the middle of the 18th century to the present. Taught in English.

GERM 385 German Cinema (3) Also offered as: FILM385. Credit only granted for: GERM385, GERM285 or FILM385. Formerly: GERM285. A history of German cinema from the golden age of silent films to the flourishing film culture of the 21st Century. Focuses on changing ideas of the role and purpose of national cinema, as well as the cinematic representation of nation and national identity. Taught in English.

GERM 386 Experiential Learning (1-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

GERM 388 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

GERM 389 Topics in Germanic Culture (3) Repeatable to 6 credits if content differs. Topics in the cultures of the German, Germanic, Indo-European peoples and of their culturally related non-Indo-European neighbors. Taught in English.

GERM 397 Honors Reading (Independent Study) (3) Supervised reading to be taken normally only by students admitted into honors program.

GERM 398 Honors Research (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Prepares students to write an honors thesis. Under the direction of a German department faculty member, the student will select a thesis topic and conduct the necessary research.

GERM 399 Selected Topics in Germanic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs.

GERM 401 Advanced Conversation (3) Prerequisite: GERM302; or students who have taken courses with comparable content may contact the department. Development of fluency in spoken German to achieve advanced level.

GERM 403 Advanced Composition (3) Prerequisite: GERM302; or students who have taken courses with comparable content may contact the department. Advanced instruction in and acquisition of German writing skills.

GERM 415 German/English Translation I (3) Restriction: Must not have completed GERM101, GERM102, GERM103, GERM201, GERM202, GERM203, GERM204, GERM301, or GERM302. An intensive presentation of German grammar limited exclusively to reading skill; graded readings in the arts and sciences. Instruction in English; cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 419 Selected Topics in German Language Study (3) Prerequisite: GERM302; and permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs.

GERM 423 From Enlightenment through Storm and Stress (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Readings of representative authors from the Enlightenment (1720- 1785), the Age of Sentimentalism (1740-1780), and Storm and Stress (1767-1785). Taught in German.

GERM 436 The Usual Suspects: Criminals in German Literature and Film (3) Prerequisite: GERM320 or GERM322; or permission of instructor. An examination of how historical, cultural and political discourses in German-speaking countries influence social norms and criteria for judging what is considered socially acceptable or "deviant". Texts and films span from the 18th to 21st centuries. Taught in German.

GERM 439 Selected Topics in German Literature (3) Prerequisite: GERM320, GERM321, or GERM322; or permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Special study of an author, school, genre, or theme. Taught in German.

GERM 441 Border Crossings and Cultural Transfers (3) Prerequisite: GERM320 or GERM322. Credit only granted for: GERM441, GERM439A, or GERM439F. Formerly: GERM439A, GERM439F. Border Crossings and Cultural Transfers emphasizes the transnational and global dimensions of German culture, analyzing the interrelationship of dominant and minority cultures within Germany and/or the

impact of German cultures abroad. Topics include migration, exile, (post)colonialism, and globalization. Taught in German.

GERM 442 Gender and Sexuality in German Literature and Society (3) Prerequisite: GERM320 or GERM322. Gender and Sexuality in German Literature and Society analyzes gender and sexuality as key discourses for understanding German-speaking literatures, cultures, and societies. Topics include the history of sexuality; death and desire; and representations of gender in German literature. Taught in German.

GERM 443 Literature as Cultural Discourse (3) Prerequisite: GERM320 or GERM322. Credit only granted for: GERM443, GERM439K, or GERM439G. Formerly: GERM439K, GERM439G. Investigates literature as cultural discourse in the construction of knowledge, emphasizing a discursive approach to analyzing a range of literary texts. Taught in German.

GERM 444 The German-Jewish Experience (3) Prerequisite: GERM320 or GERM322. Credit only granted for: GERM444 or GERM439Q. Formerly: GERM439Q. Additional information: Taught in German. Focuses on the German-Jewish experience as a key dimension of European history, literature, and culture. Topics include Heinrich Heine, German-Jewish authors and texts, and the Holocaust in literature and film.

GERM 449 Selected Topics in Germanic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Study of a linguistic, literary or cultural topic in Yiddish, Netherlandic, or Scandinavian studies.

GERM 458 Literary or Media Genres (3) Prerequisite: GERM320 or GERM322. Repeatable to 6 credits if content differs. Additional information: Taught in German. Literary or Media Genres studies the formal and stylistic dimensions of specific genres, emphasizing genre as a social, political, and aesthetic category. Topics include pop literature; the history of German drama; and German film genres among others.

GERM 463 The World of the Viking Sagas (3) An in-depth analysis of the Old Norse/Viking sagas of Medieval Scandinavia as literature historiography and folklore. Readings include Sagas of the Icelanders, Kings Sagas and Heroic/Mythical Sagas. Taught in English.

GERM 473 Variation in Contemporary German Language (3) Prerequisite: GERM302; or permission of instructor. Also offered as: GERM673. Credit only granted for: GERM473, GERM489M, or GERM673. Formerly: GERM489M. Examines the unique, multilingual society that is modern Germany, exploring issues such as regional varieties, gendered language, language reform (and resistance to it), public and media speech, the influence of American English on colloquial speech and in specific fields, and the problems of immigrant communities acquiring both dialect and standard German.

GERM 475 Old Norse (3) The language of the old Icelandic saga, the Eddas and Skaldic poetry. Reading of texts in the original; historical development of Old Norse and its role in the Germanic language family. No knowledge of German or a Scandinavian language required. Taught in English.

GERM 479 Selected Topics in Germanic Philology (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Selected topics such as comparative Germanic studies, Old Norse language or readings in Old Norse literature, modern German dialectology.

GERM 488 Capstone Seminar (3) Prerequisite: Students must have completed two 400-level courses taught in German. Provides an opportunity for German majors (usually in their senior year) to demonstrate that they have achieved the goals for learning established and approved by the department. Students analyze in depth a research topic and apply their accumulated learning. Requirements include engaging in an in-depth research project (research paper or media project) and an in-class presentation of their research to faculty and student peers. Taught in German.

GERM 489 Social Issues in German Culture (1-3) Prerequisite: GERM320 or GERM322. Repeatable to 6 credits if content differs. Special topics course examining the cultural constructions and representations of important social and political issues, investigating their connection to German values and institutions. Taught in German.

GERM 498 Honors Thesis Writing (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Required for students pursuing departmental honors in Germanic languages and literatures. Under the direction of a German department faculty member, students write their honors theses.

GERM 499 Directed Study (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs.

GREK -- Greek

GREK 101 Elementary Ancient Greek I (4) Restriction: A student who has had two units of Greek in high school may register for GREK101 for purposes of review but not for credit. Study of basic grammar, development of reading facility, and introduction to Athenian life and culture in the fifth century B.C.

GREK 102 Elementary Ancient Greek II (4) Prerequisite: GREK101; or students who have taken courses with comparable content may contact the department. Continuing development of basic grammar and reading skills; study and discussion of central aspects of Greek culture.

GREK 111 Elementary Modern Greek I (3) Restriction: Must not be a native speaker of Greek. Credit only granted for: FOLA108G or GREK111. Formerly: FOLA108G. An introduction to the language and culture of modern Greece. Students begin to acquire the basic tools of the language and to communicate, in simple everyday situations. This is the first of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 112 Elementary Modern Greek II (3) Prerequisite: GREK111; or permission of instructor. Credit only granted for: FOLA109G or GREK112. Formerly: FOLA109G. It is designed for students who have already completed the first semester course (GREK111) and/or those whose level of proficiency in Greek is not advanced enough for the intermediate level. Like GREK111, an introduction is provided to the language and culture of modern Greece. Students acquire the basic tools of the language and learn to communicate in simple, everyday situations. This is the second of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 201 Intermediate Ancient Greek (4) Prerequisite: GREK102; or students who have taken courses with comparable content may contact the department. Advancing beyond the basic skills

developed in GREK 101 and GREK 102; review of selected grammatical concepts; continuous reading of passages from Greek literature.

GREK 211 Intermediate Modern Greek I (3) Prerequisite: GREK112; or permission of instructor. Credit only granted for: FOLA118G or GREK211. Formerly: FOLA118G. A continuation of the study of basic structures and the development of fluency in functional, spoken and written communication. This is the first of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 212 Intermediate Modern Greek II (3) Prerequisite: GREK211; or permission of instructor. Credit only granted for: FOLA119G or GREK212. Formerly: FOLA119G. A continuation in the development of fluency in spoken and written communication along with the exploration of syntactic and grammatical structures. Comprehension and vocabulary enrichment are further developed through selected readings from Modern Greek prose and poetry. This is the second of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the Global Engagement requirement of the College of Arts and Humanities.

GREK 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GREK 301 Scenes from Athenian Life (3) Credit only granted for: GREK301 or GREK351. Formerly: GREK351. Makes the transition from study of Greek grammar to reading. Focus on selected aspects of life in Athens: marriage, friendship, the courts, festival, theatre. Reading short works by three authors: Lysias, Plato, and a playwright (e.g., Menander). Readings are in ancient Greek.

GREK 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GREK 386 Experiential Learning (3-6) Restriction: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and junior standing or higher.

GREK 388 Intermediate Ancient Greek Readings (3) Prerequisite: GREK201; or students who have taken courses with comparable content may contact the department. The reading of one or more selected Greek authors from the archaic period through late antiquity. Appropriate for those at an intermediate level in the study of ancient Greek.

GREK 398 Advanced Modern Greek (3) Prerequisite: GREK212; or permission of ARHU-Classics department. Repeatable to 6 credits. Develops advanced communication skills in the modern Greek language: speaking, listening, reading, and writing.

GREK 399 Topics in Advanced Modern Greek Language and Culture (3) Prerequisite: GREK212; or permission of ARHU-Classics department. Repeatable to 6 credits. Development of communicative skills in advanced Modern Greek. Topics will be drawn from the social and folk life of modern Greece.

GREK 403 Greek Tragedy (3) Additional information: Readings are in ancient Greek.

GREK 411 Modern Greek Literature and History (3) Prerequisite: Students must have earned a grade of C- or better in a 300-level Modern Greek course. Restriction: Permission of instructor. Credit only granted for: GREK311 or GREK411. Formerly: GREK311. Students will study historical and political

events in Greece during the 19th and 20th centuries through the viewpoint of the man of letters. Poetry, prose, plays, and essays reflect national emancipation, social reconstruction, and political struggles. Readings and discussion are in Modern Greek.

GREK 415 Homer (3) Prerequisite: Permission of ARHU-Classics department. Extensive readings in Greek from the Iliad or the Odyssey, with special attention to the features of Homeric style and the relationship between the two epics.

GREK 472 History and Development of the Greek Language (3) Restriction: Permission of instructor. Mastery of ancient Greek through grammar review, prose composition, and analysis of historical developments in Greek writers' modes of expression.

GREK 488 Greek Readings (3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs. Additional information: Readings are in ancient Greek. The reading of one or more selected Greek authors. Reports.

GREK 499 Independent Study in Greek Language and Literature (1-3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs.

GVPT -- Government and Politics

GVPT 101 Introduction to Political Science (3) A study of the basic principles and concepts of political science.

GVPT 105 Introduction to Political Ethics (3) Restriction: Must be in the College Park Scholars program; and must be in International Studies program or Public Leadership program. An examination of major theories of political life and politics as they pertain to international politics, conflict, and culture. Emphasis will be given to theories of ethics and morality that pertain to international studies, such as human rights.

GVPT 158 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GVPT 170 American Government (3) A comprehensive study of national government in the United States.

GVPT 200 International Political Relations (3) A study of the major factors underlying international relations, the causes of conflict and cooperation among international actors, the role of international institutions, the interactions of domestic and foreign policies, and major issues in security, economy and the environment.

GVPT 201 Scope and Methods for Political Science Research (3) Credit only granted for: GVPT100 or GVPT201. Formerly: GVPT100. An introduction to empirical research in political science.

GVPT 202 Politics, Constitutional Policy, and the Institution of the U.S. Supreme Court (3) A thorough examination of the U.S. Supreme Court in the American political system. Focusing on the Court as an institution-the set of norms, rules, and policymaking processes that lead to the Supreme Court's decisions-and how justices' decision-making processes critically determine substantive legal policy and the meaning of the U.S. Constitution.

GVPT 205 Special Topics in International Ethics, Conflict, and Immigration (3) Prerequisite: GVPT105. Recommended: GVPT241. Restriction: Must be in College Park Scholars program; and must be in GVPT international Studies program. An examination of issues in international ethics, conflict generated at the international level, and problems in immigration policy and law, including theories of rights and immigration, and ideological sources of international violence.

GVPT 208 Political Science Topics in Study Abroad (3) Repeatable to 9 credits if content differs. The study of topics in political science taken as part of an approved study abroad program.

GVPT 217 Mock Trial (3) Also offered as: MLAW217. Credit only granted for: MLAW217, GVPT217, or GVPT319A. Formerly: GVPT319A. Experience the excitement and reward of arguing, and perhaps winning your client's case in court. Mock Trial is designed for students who are interested in learning practical techniques for shaping the evidence, using the law, and exploiting the courtroom to create a coherent and convincing case theory

GVPT 221 Introduction to Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT170. An introduction to the theories of rational choice including theories of negotiation and bargaining, elections and voting in democracies, community organizing and the contrast between the roles and performances of government and market.

GVPT 227 The Craft of Political Science Research (4) Prerequisite: GVPT100 and GVPT170. Restriction: Must be in a major in BSOS-College of Behavioral & Social Sciences; and sophomore standing or higher. An introduction to research design and statistics applicable to political science.

GVPT 228 The Craft of Political Science Research (4) Prerequisite: GVPT100 and GVPT170. Restriction: Must be in a major in BSOS-College of Behavioral & Social Sciences; and sophomore standing or higher. Repeatable to 8 credits if content differs. Formerly: GVPT227. An introduction to research design and statistics applicable to political science.

GVPT 240 Political Ideologies (3) A survey and analysis of the leading ideologies of the modern world, including anarchism, communism, socialism, fascism, nationalism, and democracy.

GVPT 241 The Study of Political Philosophy: Ancient and Modern (3) Restriction: Must be in Government & Politics program; or must be in Government & Politics: International Relations program. Examines some of the salient continuities and breaks between the ancient and modern traditions in Western political philosophy.

GVPT 258 Introduction to Political Science Topics in Study Abroad (3) Repeatable to 9 credits if content differs. The study of topics in political science taken as part of an approve study abroad program.

GVPT 260 State and Local Government (3) Prerequisite: GVPT170. A study of the functioning and problems of state and local government in the United States, with illustrations from Maryland jurisdictions.

GVPT 272 The Politics of Race Relations in the United States (3) Prerequisite: GVPT170. Political dimension of historical and contemporary racial cleavage in the United States with particular emphasis on the post-World War II period.

GVPT 273 Introduction to Environmental Politics (3) An overview of modern environmental philosophy, politics, and policy, exploring environmental politics in the US by way of comparison with other developed and developing countries.

GVPT 280 The Study of Comparative Politics (3) Prerequisite: GVPT100. An introduction to the comparative study of politics and governance, including the analytical concepts for studies of politics and a survey of the major types of regimes, including democratic and authoritarian/communist regimes.

GVPT 282 Politics and the Developing World (3) A study of the domestic governmental institutions; processes and problems such as conflict and economic development; and the socio-economic environments that are common to developing countries of Africa, the Middle East, Asia, and Latin America.

GVPT 289 Special Topics in Government and Politics (1-6) Repeatable to 6 credits if content differs. Substantive issues of and theoretical approaches to political phenomenon. Topics and credit vary.

GVPT 301 Identity and Conflict (3) An examination of identity as a source of civil conflict. The course explores how identity is embedded in context, how identity is manipulated for political ends, and how identity conflict may be resolved.

GVPT 306 Global Environmental Politics (3) Prerequisite: GVPT200. Focus on three processes of international environmental policy development- identifying problems, negotiating solutions, and implementing agreements- through a range of case studies, including global climate change.

GVPT 308 Political Science Topics in Study Abroad II (3) Repeatable to 9 credits if content differs. The study of topics in political science taken as part of an approved study abroad program.

GVPT 309 Topics in International Relations (3) Repeatable to 6 credits if content differs. The study of topics in international relations.

GVPT 317 Mock Trial II: Advanced Trial Advocacy (3) Prerequisite: GVPT217. Credit only granted for: GVPT317 or GVPT319B. Formerly: GVPT319B. Development of trial advocacy skills through participation in practice trials and intercollegiate mock trial competitions. Student may have an opportunity to represent the university in intercollegiate mock trial tournaments, including the National Mock Trial Championships.

GVPT 319 Topics in Social Advocacy (1-3) Repeatable to 6 credits if content differs. Reading, research and discussion of variety of topics related to social advocacy.

GVPT 321 Intermediate Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT221. Analysis of the theory of games, social choice, voting and such notions of social welfare as distributive justice and liberty.

GVPT 331 Courts, Law and Justice (3) Prerequisite: GVPT170. An introductory course to the study of law with emphasis on how lawyers and judges think and argue. Topics include, contract law, property, family law, torts, and criminal procedure.

GVPT 339 Topics in Public Law (3) Repeatable to 6 credits if content differs. The study of topics in public law.

GVPT 349 Topics in Political Philosophy (3) Repeatable to 6 credits if content differs. The study of topics in political philosophy.

GVPT 351 Model United Nations (3) Restriction: Must be in College Park Scholars program; and must be in GVPT International Studies program. Formerly: GVPT388S. Students are prepared for the model United Nations Conference held at Harvard University every February.

GVPT 354 International Development and Conflict Management (3) Restriction: Enrollment is restricted to students in the Minor in International Development and Conflict Management; and permission of BSOS-Government & Politics department; and sophomore standing or higher. Additional information: Students are expected to take the course during the Fall semester after admission to the program. Serves as the gateway course for the Minor in International Development and Conflict Management. Provides an introductory foundation in the theory and practice of international development and conflict management. Introduces the structures, key players, intersections, and main trends in the evolution of the fields. Explores causal factors that drive economic growth, poverty, inequality, and conflict, as well as the resources, methods, and tools available to track and address these issues.

GVPT 355 Capstone in International Conflict Management (3) Prerequisite: GVPT354. Restriction: Enrollment is restricted to students in the Minor in International Development and Conflict Management; and sophomore standing or higher; and permission of BSOS-Government & Politics department. Serves as one of the two capstone courses for the Minor in International Development and Conflict Management. Focuses on advanced theory and the practice and profession of international conflict management and is designed to provide students an introduction to, and a chance to engage with, a core set of practical skills relevant to the field.

GVPT 356 Capstone in International Development (3) Prerequisite: GVPT354. Restriction: Enrollment is restricted to students in the Minor in International Development and Conflict Management; and sophomore standing or higher; and permission of BSOS-Government & Politics department. Serves as one of the two capstone courses for the Minor in International Development and Conflict Management. Focuses on advanced theory and the practice and profession of international development and is designed to provide students an introduction to, and a chance to engage with, a core set of practical skills relevant to the field.

GVPT 358 Study Abroad Seminar in Political Science (3) Repeatable to 9 credits if content differs. The study of topics in political science.

GVPT 359 Topics in Comparative Politics (3) Repeatable to 6 credits if content differs. The study of topics in comparative politics.

GVPT 360 International Negotiations (3) Prerequisite: GVPT200. A study of the complexities of international negotiation and cross-cultural decision-making. Students will apply advanced computer technology in an interactive simulation involving actual negotiations.

GVPT 368 Special Topics in Government and Politics (3) Repeatable to 6 credits if content differs. The study of topics in government and politics.

GVPT 376 Applied Field Research in Government and Politics (3-6) Prerequisite: GVPT170. Corequisite: GVPT377. Students in this course participate as interns in an agency of government or in some other appropriate political organization. Assignments are arranged to provide students with insights into both theoretical and practical aspects of politics. Under the tutelage of the host agency and an

academic advisor, students conduct a major research project of mutual interest to the student and his or her host agency in the field of government and politics.

GVPT 377 Seminar For Academic Interns (3) Prerequisite: GVPT170. Corequisite: GVPT376. The application of major concepts of political science to the realities of the political process. Readings and discussion attempt to relate the experiences of the academic interns to appropriate literature on the subject of political decision-making.

GVPT 379 Topics in American Politics (3) Repeatable to 6 credits if content differs. The study of topics in American politics.

GVPT 386 Experiential Learning (3-6) Restriction: Permission of BSOS-Government & Politics department; and junior standing or higher.

GVPT 388 Topical Investigations (1-3) Prerequisite: 1 course from GVPT200-299 course range. Repeatable to 6 credits if content differs. Independent research and writing on selected topics in government and politics.

GVPT 389 Experiential Learning II (3-6) Restriction: Permission of BSOS-Government & Politics department; and junior standing or higher. Repeatable to 6 credits. Experiential credit for working in government & politics related internships, research, and teaching opportunities.

GVPT 390 Game Theory (3) Restriction: Must not have completed ECON414. Credit only granted for: GVPT399A, GVPT390, CMSC474 or ECON414. Formerly: GVPT399A. Introduction to game theory with applications to political science, economics and sociology. Topics include preference theory, expected utility theory, Nash equilibria, subgame perfection, repeated games, folk theorems, and evolutionary stability.

GVPT 391 Advanced Game Theory (3) Credit only granted for: GVPT391 or GVPT399B. Formerly: GVPT399B. Knowledge of basic solution concepts such as Nash and subgame perfectio is assumed. Topics include Bayesian equilibria, correlated equilibria, bargaining games, and common knowledge. Applications span all social sciences.

GVPT 392 Introduction to Geographic Information Systems for Social Science Research (3) Credit only granted for: GVPT392, GVPT429A, or GVPT729D. Formerly: GVPT429A, GVPT729D. Introduction to the use of Geographic Information Systems for conducting research in the social sciences. Overview of spatially embedded nature of many social science phenomena and content of theories common to spatial thinking. Students will obtain hands-on experience with various GIS tools and methods most frequently employed by social scientists.

GVPT 393 Intermediate Geographic Information Systems (3) Prerequisite: Must have completed one GIS course and at least one course in statistics. Credit only granted for: GVPT368I, GVPT393 or GEOG498W. Formerly: GVPT368I. Part II of a two-semester course that integrates Geographic Information Systems with social science research. Lectures and readings will motivate the use of GIS by exposure to research applications in international relations; political and non-profit fundraising; environmental justice; public health; race relations; business and economics.

GVPT 396 Introduction to Honors Research (3) Restriction: Must be in Government & Politics Honors Program; and must have permission of the Government & Politics Honors Program. A required course for all honors students designed to emphasize library research, methodology, and writing skills in political

science and political philosophy. A written proposal, bibliography and research design for an honors paper required of all students as a final project.

GVPT 397 Honors Research (3) Prerequisite: GVPT396. Restriction: Must be in Government & Politics Honors Program. Individual reading and research. Preparation of an original paper.

GVPT 399 Seminar in Government and Politics (3) Prerequisite: 1 course from GVPT200-299 course range. Reading, research, discussion, analysis, and writing in the area of politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics undergraduate majors.

GVPT 402 International Law (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and junior standing or higher. A study of the basic character, general principles and specific rules of international law, with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs.

GVPT 406 International Organizations (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and junior standing or higher. Or must be in Government & Politics: International Relations program; and junior standing or higher. A basic introduction to the full range of international organizations that have come into being over the past century and one-half, including those that aspire to be universal or global, those with a geopolitical or regional focus, and those that address specific structural or functional areas of human endeavor or issue areas.

GVPT 407 International Political Economy (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and junior standing or higher. Introduces the field of international political economy, which analyzes the ways in which economic and political changes produce both economic and political reactions.

GVPT 409 Seminar in International Relations and World Politics (3) Prerequisite: GVPT200. Restriction: Must be in one of the following programs (Government & Politics; Government & Politics: International Relations) ; and junior standing or higher. Repeatable to 9 credits if content differs. Reading, writing, and research on topics in international relations and world politics. Both substantive issues and methodological approaches will be considered.

GVPT 417 Seminar in Advanced Topics in Environmental Policy Analysis (3) Prerequisite: GVPT273. Restriction: Must be in one of the following programs (Government & Politics; Environmental Sci&Policy-Env Politics & Policy). Credit only granted for: GVPT419B or GVPT417. Formerly: GVPT419B. A series of critical tools and methods used to analyze environmental policy. This class should be of interest to students who are either considering a career or graduate studies in environmental protection.

GVPT 419 Seminar in Public Policy (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT270. Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public policy. Both substantive issues and methodological approaches will be considered.

GVPT 420 The Logic and Practice of Measuring Political Behavior (3) Prerequisite: GVPT201. Restriction: Must be in Government & Politics program; or must be in Government & Politics: International Relations program. Introduction to concepts and practices used for measuring political behavior. Political analysis is an increasingly quantitative field, It is crucial for students of political

behavior to learn how to define concepts in concrete ways, examine different methods of measuring concepts, learn how to test the quality of chosen measures, learn how to construct richer measures out of multiple questions, and finally how to examine the relationship between multiple measures of similar concepts. Common pitfalls, errors, bias, and ethics will be examined along the way.

GVPT 422 Quantitative Political Analysis (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT220. Restriction: Must be in Government & Politics program. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Introduction to quantitative methods of data analysis, including selected statistical methods, block analysis, content analysis, and scale construction.

GVPT 423 Elections and Electoral Behavior (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program. An examination of various topics relating to elections; the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections.

GVPT 424 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT241 and GVPT221. Restriction: Must be in a major within BSOS-Government & Politics department. The focus of this course will vary both by its theoretical core and its applications. The theories are likely to be those of games, social choice, and voting. The applications will usually be to problems of distributive and social justice, community organizing, responsive public policy, institutional design, alliance and coalition formation, etc. Some of the topics will involve research projects.

GVPT 428 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT241 and GVPT221. Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. An evaluation of theories of political behavior such as game, social choice and voting theory, and their applications to problems of distribution and social justice, community organizing, responsive public policy, institutional design, and alliance and coalition formation.

GVPT 429 Problems in Political Behavior (3) Prerequisite: GVPT241. Recommended: GVPT220. Restriction: Must be in Government & Politics program. The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.

GVPT 431 Introduction to Constitutional Law (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and junior standing or higher. A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.

GVPT 432 Civil Rights and the Constitution (3) Prerequisite: GVPT241 and GVPT331. Restriction: Must be in Government & Politics program. A study of civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, and the rights of defendants.

GVPT 433 The Judicial Process (3) Prerequisite: GVPT241 and GVPT331. Restriction: Must be in Government & Politics program. An examination of judicial organization in the United States at all levels of government, with some emphasis on legal reasoning, legal research, and court procedures.

GVPT 439 Seminar in Public Law (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT331. Restriction: Must be in Government & Politics program; and junior standing or higher. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public law. Both substantive issues and methodological approaches will be considered.

GVPT 441 History of Political Theory: Ancient and Medieval (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program; and junior standing or higher. A survey of the principal political theories set forth in the works of writers before Machiavelli.

GVPT 442 History of Political Theory--Medieval to Recent (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. A survey of the principal theories set forth in the works of writers from Machiavelli to Nietzsche.

GVPT 443 Contemporary Political Theory (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. A survey of the principal political theories and ideologies set forth in the works of writers from Karl Marx to the present.

GVPT 445 Marxism and Postmarxism (3) Restriction: Must be in a major within BSOS-Government & Politics department. The study of Marxist thought and an assessment of the critical transformations and reassessments of the theory and practice of Marxism.

GVPT 448 Non-Western Political Thought (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. Additional information: Permission of department required for repeat. Examination of works by major authors and general themes of political thought originating in Asia, the Middle East, and Africa. This is not a survey of all non-Western political thought, but a course to be limited by the professor with each offering.

GVPT 449 Seminar in Political Philosophy (3) Prerequisite: GVPT241. Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in political philosophy. Both substantive issues and methodological approaches will be considered.

GVPT 454 Seminar in the International Relations of China (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and junior standing or higher. Or must be in Government & Politics: International Relations program; and junior standing or higher. Explores the foreign relations behavior of the People's Republic of China, with focus on the contemporary era.

GVPT 456 The Politics of Terrorism (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; or must be in Government & Politics: International Relations program. Credit only granted for: GVPT456 or GVPT459T. Formerly: GVPT459T. Examination of the definition, causes and organization of terrorist activity, along with key domestic and international counter- and anti-terrorism responses. Special emphasis on challanges and opportunities to the scientific study of terrorism.

GVPT 457 American Foreign Relations (3) Prerequisite: GVPT200. Restriction: Must be in Government & Politics program; and junior standing or higher. The principles and machinery of the conduct of American foreign relations, with emphasis on the Departments of State and Defense, and an analysis of the major foreign policies of the United States.

GVPT 458 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

GVPT 459 Seminar in Comparative Politics (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in comparative politics. Both substantive issues and methodological approaches will be considered.

GVPT 460 Problems in State and Local Government (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT260. Restriction: Must be in Government & Politics program. A study of the structure, procedures and policies of state and local governments with special emphasis on the state level and on intergovernmental relationships, and with illustrations from Maryland governmental arrangements.

GVPT 461 Metropolitan Government (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program. An examination of administrative problems relating to public services, planning, and coordination in a metropolitan environment.

GVPT 462 Urban Politics (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT260. Urban political process and institutions considered in the light of changing social and economic conditions.

GVPT 473 The U.S. Congress (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and junior standing or higher. A detailed survey of lawmaking and the legislative process, emphasizing the U.S. Congress, and its members.

GVPT 474 Political Parties (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program. A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

GVPT 475 The Presidency and the Executive Branch (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and junior standing or higher. An examination of the U.S. presidency in historical and contemporary perspective: nomination and electoral politics and the president's place in policy-making, administration, and public opinion.

GVPT 476 The Business Government Relationship (3) Prerequisite: GVPT241 and GVPT170. Recommended: GVPT270. Restriction: Must be in Government & Politics program. Examines the structures, process, and outcomes of business and government and the politics and products of their cooperative-adversarial relationships in the United States. The design integrates interest group and administrative politics and the public policy process.

GVPT 477 Voting and Participation (3) Prerequisite: GVPT170 and GVPT241. Restriction: Must be in Government & Politics program. A study of the factors that influence individual vote choice and voter participation in the U.S. The course will introduce political science research pertaining to both topics and will engage current controversies over such things as political campaign laws and the various state and federal rules that govern election administration.

GVPT 479 Seminar in American Politics (3) Prerequisite: GVPT241 and GVPT170. Restriction: Must be in Government & Politics program; and junior standing or higher. Repeatable to 6 credits if content differs. Reading, writing, and research on topics in American politics. Both substantive issues and methodological approaches will be considered.

GVPT 481 Government and Administration of Russia and the States of the Former Soviet Union (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics

program. A comparative study of the governmental systems and political processes of the states of the former Soviet Union.

GVPT 482 Government and Politics of Latin America (3) Restriction: Must be in Government & Politics program; or must be in Government & Politics: International Relations program. A comparative study of the governmental systems and political processes of the Latin American countries.

GVPT 484 Government and Politics of Africa (3) Prerequisite: GVPT282 or GVPT280. Restriction: Must be in a major within BSOS-Government & Politics department. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 485 Government and Politics of the Middle East (3) Prerequisite: GVPT200; and (GVPT282 or GVPT280). Restriction: Must be in Government & Politics program. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 487 Government and Politics of China (3) Restriction: Must be in one of the following programs (Government & Politics; Government & Politics: International Relations) ; and junior standing or higher. Credit only granted for: GVPT359A or GVPT487. Formerly: GVPT359A. Discussion of major issues in the study of the domestic politics of the People's Republic of China.

HACS -- ACES-Cybersecurity

HACS 100 Foundations in Cybersecurity I (2) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program. Interdisciplinary foundational course of the ACES program. Through lectures, lab activities, and discussions, students will learn and practice various aspects of cybersecurity. Weekly technical lectures will introduce students to the operating system UNIX. Students will partner with the Division of Information Technology in a project to engage the University of Maryland community in a cyber- hygiene and cyber-ethics campaign based on the concepts learned in class.

HACS 102 Foundations in Cybersecurity II (3) Prerequisite: HACS100. Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program. Second interdisciplinary foundational course of the ACES program. Through lectures and project work, students will learn and practice cybersecurity. Students will work in teams to develop a honeypot project, and work on this project throughout the course. Weekly lectures will supplement project work, focusing on types of computer attacks and protections, data collection and analysis, and other foundational cybersecurity concepts.

HACS 201 Introduction to UNIX (1) Restriction: Must be a first-year student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program. Credit only granted for: HACS201 or CMSC216. Additional information: Required course for students who have not completed the ACES Living-Learning Program or taken CMSC216. Introduction to the operating system UNIX through lectures and hands-on assignments.

HACS 202 Group Project in Cybersecurity (3) Restriction: Must be a first-year student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and cannot have been an ACES Living-Learning Program student (i.e., have taken HACS100 and HACS102). The group project in this

course will combine technical, analytical, and communication skills, further engaging students in the practice of cybersecurity. Students will learn about design concepts and data analysis as they engage in a team project designing, deploying, and collecting and analyzing data from a honeypot. The hands-on nature of the course will give students experiential insight about how and why attackers attack and how to engage in protective measures to prevent attacks.

HACS 208 Seminar in Cybersecurity (3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program. Repeatable to 6 credits if content differs. Explores various lenses of cybersecurity in order to promote an interdisciplinary understanding of the field. Although each section may focus on a different topic, each integrates active student engagement, communication, critical communication, critical thinking, and teamwork.

HACS 279 Undergraduate Research in Cybersecurity (1-3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program; and permission of UGST-HCOL-ACES Cybersecurity Program. Repeatable to 6 credits if content differs. The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in research in order to gain greater insight into a specific area within cybersecurity, obtain an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications, and to prepare for graduate school and the workforce.

HACS 287 Undergraduate Research in Cybersecurity (3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program; and permission of UGST-HCOL-ACES Cybersecurity Program. The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in research in order to gain greater insight into a specific area within cybersecurity, obtain an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications, and to prepare for graduate school and the workforce.

HACS 297 Cybersecurity Experience Reflection (3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Living-Learning Program; and permission of UGST-HCOL-ACES Cybersecurity Program. Cybersecurity experience is defined as an experiential learning activity either with a University of Maryland entity (such as the Division of Information Technology, the ACES competition team or in an ACES outreach program), or with an external organization that will provide valuable, hands-on experience to supplement the knowledge learned in the other ACES coursework.

HACS 318 Cybersecurity Professionals Colloquium Series (1) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program. Repeatable to 2 credits. The Cybersecurity Professionals Colloquium Series explores various lenses of cybersecurity in order to promote an interdisciplinary understanding of the field. The colloquium series consists of guest lectures of cybersecurity professionals. In written assignments, students will not only summarize the lecture content but also reflect on the significance of the lecture content for the field of cybersecurity.

HACS 402 Applied Security Analysis and Visualization (3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program. Focuses on exploratory and statistical data analysis, data and information visualization, and the presentation and communication of analysis results. These topics will be presented and explored in the context of and with applications to cybersecurity related data.

HACS 408 Advanced Seminar in Cybersecurity (3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program. Repeatable to 9 credits if content differs. Explores various lenses of cybersecurity in order to promote an interdisciplinary understanding of the field. Although each section may focus on a different topic, each integrates active student engagement, communication, critical communication, critical thinking, and teamwork.

HACS 479 Undergraduate Research in Cybersecurity (1-3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and permission of UGST-HCOL-ACES Cybersecurity Program. Repeatable to 6 credits if content differs. The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in research in order to gain greater insight into a specific area within cybersecurity, obtain an appreciation for the subtleties and difficulties associated with the production of knowledge and fundamental new applications, and to prepare for graduate school and the workforce.

HACS 498 Cybersecurity Group Problem Solving (3) Restriction: Must be a student in the ACES (Advanced Cybersecurity Experience for Students) Minor Program; and permission of UGST-HCOL-ACES Cybersecurity Program. Repeatable to 6 credits. The Advanced Cybersecurity Experience for Students (ACES) program encourages its students to engage in team problem solving activities in order to gain greater insight into a specific area within cybersecurity and to obtain an appreciation for the subtleties and difficulties associated with these activities in order to prepare students for graduate school and the workforce. Students engage in a semester long problem solving or development project under the mentorship of a industry specialist and with the guidance of university faculty. Through the exercise the students will develop teamwork experience and professional communication skills in addition to experience of the project itself. The project might be evaluation, creation, testing or analysis of some area of cybersecurity as needed by the mentor-sponsor. A contract of what will be accomplished is required must be agreed upon by the mentor, the student and the ACES leadership before the project can begin.

HDCC -- Design Cultures and Creativity

HDCC 105 Introduction to Digital Cultures and Creativity I (2) Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. History, concepts, and technologies of creative digital expression, coupled with an introduction to development for particular platforms and devices.

HDCC 106 Introduction to Digital and Creativity II (3) Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. Introduction to the methods and theory of digital cultural production, with emphasis on creative and expressive platforms.

HDCC 208 Seminar in Digital Cultures and Creativity (3) Prerequisite: HDCC106 and HDCC105. Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. Repeatable to 6 credits if content differs. An advanced seminar in specific aspects of digital culture and creativity, designed to keep students abreast of the latest developments in new media and the online world. Possible topics include mobile gaming, digital storytelling, and electronic music.

HDCC 209 Practicum in Digital Cultures and Creativity (2) Prerequisite: HDCC208. Restriction: Must be in the Digital Cultures and Creativity Honors College Living/Learning program. Repeatable to 4 credits if content differs. Practicum in Digital Cultures and Creativity in which students will develop their program capstone projects under the supervision of a faculty mentor, with regular checkpoints and presentations to track progress.

HDCC 379 Digital Cultures and Creativity Independent Study (1-3) Prerequisite: HDCC105. Restriction: Must be enrolled in the Digital Cultures and Creativity Honors College living-learning program; and permission of UGST-HCOL-Digital Cultures & Creativity Program. Repeatable to 6 credits if content differs. Involves research and/or creative scholarship directed by individual DCC faculty outside of the formal classroom structure.

HEBR -- Hebrew

HEBR 102 Elementary Hebrew I-B (3) Prerequisite: HEBR101; or must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR111. Credit only granted for: (HEBR101 and HEBR102) or HEBR111. Continues HEBR101. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability. Corresponds to the second half of HEBR111.

HEBR 103 Elementary Hebrew II-A (3) Prerequisite: HEBR111 or HEBR102; or must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR112. Credit only granted for: (HEBR103 and HEBR104) or HEBR112. Continuation of HEBR102 and HEBR111. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing, and reading ability. Corresponds to the first half of HEBR112.

HEBR 104 Elementary Hebrew II-B (3) Prerequisite: HEBR103; or must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR112. Credit only granted for: (HEBR103 and HEBR104) or HEBR112. Continuation of HEBR103. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing, and reading ability. Corresponds to the second half of HEBR112.

HEBR 111 Elementary Hebrew I (6) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed HEBR101; and must not have completed HEBR102. Credit only granted for: (HEBR101 and HEBR102) or HEBR111. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability.

HEBR 112 Elementary Hebrew II (6) Prerequisite: HEBR111; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed HEBR103; and must not have completed HEBR104. Credit only granted for: (HEBR103 and HEBR104) or HEBR112. Continuation of HEBR 111.

HEBR 199 Special Topics in Hebrew (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Topics in language, literature, and culture. Varies by semester and instructor.

HEBR 203 Intermediate Hebrew II-A (3) Prerequisite: HEBR212 or HEBR202; or must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR212. Credit only granted for: (HEBR203 and HEBR204) or HEBR212. Continuation of HEBR211 or HEBR202. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the first half of HEBR212.

HEBR 204 Intermediate Hebrew II-B (3) Prerequisite: HEBR203; or must have placement by the Hebrew coordinator. Restriction: Must not have completed HEBR212. Credit only granted for: (HEBR203 and HEBR204) or HEBR212. Continuation of HEBR203. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture. Corresponds to the second half of HEBR212.

HEBR 211 Intermediate Hebrew I (6) Prerequisite: HEBR112; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed HEBR201; and must not have completed HEBR202. Credit only granted for: (HEBR201 and HEBR202) or HEBR211. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture.

HEBR 212 Intermediate Hebrew II (6) Prerequisite: HEBR211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not have completed HEBR203; and must not have completed HEBR204. Credit only granted for: (HEBR203 and HEBR204) or HEBR212. Continuation of HEBR211.

HEBR 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HEBR 298 Special Topics in Jewish Studies (3) Repeatable to 6 credits if content differs.

HEBR 313 Conversation and Composition I (3) Prerequisite: HEBR212; or students who have taken courses with comparable content may contact the department. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 314 Conversation and Composition II (3) Prerequisite: HEBR313; or students who have taken courses with comparable content may contact the department. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HEBR 381 Introduction to Hebrew Cultural Studies (3) Prerequisite: HEBR314; or permission of instructor. Also offered as: JWST381. Credit only granted for: HEBR381 or JWST381. Critical study of Israeli culture with emphasis on literature, film, and art as sites of struggle over political and social meaning during times of cultural transformation. Focus on the historical development of Israeli identity and gender, in particular within the military and Zionist youth movements. Taught in Hebrew.

HEBR 382 Israeli Media (3) Prerequisite: HEBR314; or permission of instructor. Also offered as: JWST382. Credit only granted for: HEBR382 or JWST382. Examination of traditional and new media genres in Israel today. Focus on the self-representation of Israeli society and the interaction between media, society, and culture. Taught in Hebrew.

HEBR 386 Experiential Learning (3-6) Restriction: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and junior standing or higher.

HEBR 388 Language House Colloquium (1) Restriction: Must be a resident in the Language House Immersion program. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

HEBR 430 Critical Issues in Israeli Cinema (3) Also offered as: FILM430. Credit only granted for: HEBR430 or FILM430. Critical investigation of Zionist and Israeli culture and politics through film.

HEBR 498 Special Topics in Hebrew (3) Repeatable to 6 credits if content differs.

HEBR 499 Independent Study in Hebrew (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

HEIP -- Entrepreneurship and Innovation

HEIP 143 Foundations of Entrepreneurship and Innovation (1) Restriction: Must be in the Entrepreneurship and Innovation Program (EIP). Foundational ideas and terms in entrepreneurship and innovation are introduced, with attention to developing students understanding of cultivating a business in diverse, global environments; leading and collaborating in a competitive world; developing an entrepreneurial mind for an entrepreneurial world; and industry dynamics of technological innovation.

HEIP 144 Contemporary Issues in Entrepreneurship and Innovation (3) Prerequisite: HEIP143. Restriction: Must be in the Entrepreneurship and Innovation Program (EIP). Inspires entrepreneurial innovation and creativity through interactive lectures, workshops, and case studies on contemporary issues to include energy, life sciences, healthcare, and technology. Explores entrepreneurial innovation sources, structures and dynamics. Helps students develop skills for generating ideas and addressing current issues and problems.

HEIP 240 Exploring International Entrepreneurship and Innovation (3) Restriction: Must be an EIP student in good-standing. An introduction to the opportunities and challenges of entrepreneurship and innovation from an international perspective.

HEIP 241 EIP Capstone: Creating Enterprise with Social Impact (2) Restriction: Must be in the Entrepreneurship and Innovation Program (EIP). Addresses the global necessity to develop and implement solutions to critical social and environmental concerns in ways that are both technologically viable and economically sustainable. Through group exercises, guest speakers, discussions, and experiential learning activities, students will develop the skills to create businesses that achieve the double bottom line of both profitability and social benefit.

HESI -- Higher Ed, Student Affairs, and International Ed Policy

HESI 217 Introduction to Student Leadership (3) Restriction: Freshman standing; or sophomore standing. Credit only granted for: HESI217 or EDCP217. Formerly: EDCP217. Introduction to leadership theories, concepts, and skills. Completion of personal and leadership self-assessments, values exploration, and small group application.

HESI 298 Special Problems in Higher Education, Student Affairs, and International Education Policy (1-6) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education

department. Individual instruction in special problems related to higher education, student affairs and international education policy.

HESI 315 Student Leadership in Groups and Organizations (3) Recommended: HESI217. Credit only granted for: HESI315 or EDCP315. Formerly: EDCP315. Acquiring and integrating leadership knowledge within group and organizational contexts so that students can navigate organizational environments and apply leadership in diverse communities of practice and career contexts.

HESI 318 Applied Contextual Leadership (3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Repeatable to 6 credits if content differs. Credit only granted for: HESI318 or EDCP318. Formerly: EDCP318. Course will utilize experiential learning opportunities to develop and apply the knowledge and skills of leadership into specific contexts of leadership practice.

HESI 320 Social Action Seminar (2) Prerequisite: HESI217. Restriction: Limited to Minor in Leadership Studies students. The use of leadership theories to inform the practice of addressing social issues in society, on campus, or within the surrounding community. Students will: identify a current and compelling social issue; explore the historical, social, and political aspects of social issues; identify and select applicable leadership theories to confront the social issue; create and develop a plan that integrates leadership theories and the social issue; and implement and evaluate the overall social action project.

HESI 321 Advanced Social Action Seminar (1) Prerequisite: HESI217 and EDCP320. Restriction: Limited to Minor in Leadership Studies students only. The use of leadership theories to inform the practice of addressing social issues in society, on campus, or within the surrounding community. Students will: identify a current and compelling social issue; explore the historical, social, and political aspects of social issues; identify and select applicable leadership theories to confront the social issue; create and develop a plan that integrates leadership theories and the social issue; and implement and evaluate the overall social action project. Focuses on executing, implementing, and assessing a social action project in small groups and teams.

HESI 417 Advanced Leadership Seminar (3) Prerequisite: HESI217; or students who have taken courses with comparable content may contact the department. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Credit only granted for: EDCP417 or HESI417. Students will analyze and synthesize the concept of leadership using cultural, ethical, sociological, historical perspectives. Exploration and reflection of personal values, decision making, in-depth analysis on various leadership activities. Theories will be emphasized.

HESI 418 Special Topics in Leadership (3) Repeatable to 6 credits if content differs. Credit only granted for: HESI418 or EDCP418. Formerly: EDCP418. The special topics and leadership course will address a single topic related to leadership through the semester. In-depth study and analysis on the topic will be the basis for the course. Topics include gender and leadership, ethics and leadership, and culture and leadership. Leadership will serve as the foundation in the course.

HESI 470 Introduction to Student Personnel (3) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Credit only granted for: EDCP470 or HESI470. Formerly: EDCP470. A systematic analysis of research and theoretical literature on a variety of major problems in the organization and administration of student personnel services in higher education. Included will be discussion of such topics as the student personnel philosophy in education, counseling services, discipline, housing, student activities, financial aid, health, remedial services, etc.

HESI 489 Field Experiences in Higher Education, Student Affairs, and International Education Poli (1-4) Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Planned field experience in education and community related activities. Credit not to be granted for experiences accrued prior to registration.

HESI 498 Special Problems in Higher Education, Student Affairs, and International Education Policy (1-3) Prerequisite: Available only to HISA, HIED, and HIEP students who have formal plans for individual study of approved problems. Restriction: Permission of EDUC-Counseling, Higher Education and Special Education department. Available only to HESI students who have formal plans for individual study of approved problems.

HESI 499 Workshops, Clinics, Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Higher Education, Student Affairs, and International Education Policy program (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listings.

HESP -- Hearing and Speech Sciences

HESP 120 Introduction to Linguistics (3) Additional information: HESP120 is required for HESP majors. HESP majors may not substitute LING200. An introduction to the scientific study of natural language with focus on the basic concepts of phonology, syntax, semantics and pragmatics, with subsequent attention to the applied aspects of linguistic principles.

HESP 150 Introduction to Language Science (3) Language science is the scientific study of how humans acquire, use, comprehend, and produce language. Most people in all societies learn and use their native language or languages with apparent ease - but don't be fooled: languages are highly complex, and speaking and understanding language requires some amazing feats of mental acrobatics. Thus there are many opportunities for difficulties with language, which is the focus of our field. Understanding difficulties with speech, language, and hearing require first understanding how processing works when language is successful - the psychological (behavioral) and neurobiological (brain) factors that enable people to learn and use language despite its intricacies, the structure and properties of language itself, and how knowledge of language is acquired, represented, and processed in the mind and brain.

HESP 202 Introduction to Hearing and Speech Sciences (3) An introduction to communication sciences and disorders; a survey of the bases of normal speech, language and hearing ability, major forms of communicative disorders and their treatment.

HESP 258 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HESP 300 Introduction to Psycholinguistics (3) Prerequisite: Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department. Recommended: HESP120. An introduction to current theories of language and an investigation of their relationship to human communication behavior. Survey of the experimental literature relating to this question.

HESP 303 Phonetic transcription (2) Prerequisite: Permission of instructor. An introduction to broad and narrow phonetic transcription, and to physiology of speech production. The primary goal of the course is to provide knowledge about phonetics and the ability to use this knowledge in an applied setting.

HESP 305 Anatomy and Physiology of the Speech Mechanism (3) Prerequisite: Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department. Anatomy, physiology, and neurology of speech mechanism.

HESP 306 Anatomy and Physiology of Speech & Hearing (4) Prerequisite: Permission of instructor. This is a 4-credit course focusing on the biological and neurological bases of human speech production and human hearing, namely the anatomy, physiology, and neurology of the vocal/speech mechanism and the hearing mechanism.Specifically, respiration, phonation, resonance, articulation, swallowing, and hearing will be highlighted. A strong understanding of normal anatomy and physiology is essential for the successful evaluation and treatment of patients with speech, language, swallowing and hearing disorders.

HESP 307 Speech & Hearing Science (4) Prerequisite: HESP303. Human hearing is exquisitely sensitive, allowing us to hear extremely faint sounds, to follow the sounds of a friend's voice in a loud party, and to appreciate subtle differences between words in the language. This course provides an introduction to the basic physics of sound, the acoustic properties of the sounds of speech, and the mechanisms by which those sounds are perceived by the listener.

HESP 311 Anatomy, Pathology and Physiology of the Auditory System (3) Prerequisite: Minimum grade of C- in HESP202; or permission of BSOS-Hearing & Speech Sciences department. Gross anatomy of the ear and pathways for transmission of sound energy through the peripheral and central auditory system. Causes, development and effects of pathological conditions contributing to temporary or chronic hearing impairments.

HESP 313 Neurobiology for Speech and Hearing (2) This course is designed to provide an understanding of normal neuroanatomy and neurophysiology of speech and language. It will also provide preliminary information regarding pathologic processes, especially those affecting speech and language

HESP 359 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HESP 386 Experiential Learning (1-3) Restriction: Junior standing or higher; and permission of BSOS-Hearing & Speech Sciences department. Students will have the opportunity observe and/or participate in therapy activities provided by a speech-language pathologist or audiologist in this experiential learning course.

HESP 388 Undergraduate Research Externship (1-3) Prerequisite: HESP311, HESP300, HESP305, and HESP202. Restriction: Permission of BSOS-Hearing & Speech Sciences department; and sophomore standing or higher. Off-campus research internship with departmental affiliates at National Institutes of Health and regional universities. Contact department chairman for openings and descriptions of eligible placements.

HESP 389 LEAP Classroom Internship (1-3) Prerequisite: HESP202; or students who have taken courses with comparable content may contact the department. Restriction: Permission of BSOS-Hearing & Speech Sciences department. Participation in a language-based, literacy-rich preschool classroom for children with speech-language disorders. Students will learn behavior management techniques, curriculum planning and implementation, facilitation of play among children, data collection and teaching srategies.

HESP 400 Speech and Language Development in Children (3) Prerequisite: Minimum grade of C- in HESP300; or permission of BSOS-Hearing & Speech Sciences department. Recommended: LING200 or

HESP120. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Analysis of the normal processes of speech and language development in children.

HESP 402 Language and Phonological Disorders in Children (3) Prerequisite: Minimum grade of C- in HESP400; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program. Etiology, assessment and treatment of language and phonological disorders in children.

HESP 403 Introduction to Phonetic Science (3) Prerequisite: Minimum grade of C- in HESP305; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. An introduction to physiological, acoustic and perceptual phonetics; broad and narrow phonetic transcription; current models of speech production and perception.

HESP 404 Fluency & Voice Disorders (3) Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Etiology, assessment and therapeutic management of phonation, resonance, and fluency disorders in children and adults.

HESP 406 Acquired Neurogenic Communication Disorders in Adults (3) Prerequisite: Minimum grade of C- in HESP300 and HESP305; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view.

HESP 407 Bases of Hearing Science (3) Prerequisite: Minimum grade of C- in HESP311; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. Fundamentals of hearing, including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception, and topics in psychological acoustics.

HESP 411 Introduction to Audiology (3) Prerequisite: Minimum grade of C- in HESP311; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. An introduction to the field of audiology. Evaluation and remediation of hearing handicaps.

HESP 413 Aural Rehabilitation/Habilitation (3) Prerequisite: HESP411. Restriction: Sophomore standing or higher. The fundamental aspects of aural rehabilitation therapy for both adults and children are introduced to students. Class time will consist of lectures, discussions, and hands-on activities.

HESP 417 Principles and Methods in Speech-Language Pathology and Audiology (3) Prerequisite: HESP400 and HESP411; or permission of BSOS-Hearing & Speech Sciences department. Restriction: Must be in Hearing and Speech Sciences program; or permission of BSOS-Hearing & Speech Sciences department. The principles underlying the treatment of speech, language and hearing disorders in children and adults.

HESP 418 Clinical Practice in Speech-Language Pathology and Audiology (3) Prerequisite: Minimum grade of C- in HESP417. Restriction: Permission of BSOS-Hearing & Speech Sciences department. Repeatable to 6 credits. Supervised observation with some direct participation in clinical

methods for the treatment of disorders of articulation, fluency, child and adult language; evaluation and habilitation/rehabilitation of hearing impaired children and adults.

HESP 420 Deafness and Sign Language (3) Credit only granted for: HESP498A or HESP420. An introduction to American Sign Language and Deaf Culture.

HESP 422 Neurological Bases of Human Communication (3) Prerequisite: HESP305; or permission of instructor. Credit only granted for: HESP498 or HESP422. Basic neurology as it pertains to anatomy and physiology substrates of speech and language.

HESP 469 Honor Thesis Research (1-3) Prerequisite: Permission of honors thesis advisor required. Repeatable to 6 credits if content differs. Student will develop thesis proposal, conduct research, analyze results, develop and defend final written document.

HESP 498 Seminar (3) Restriction: Permission of BSOS-Hearing & Speech Sciences department. Repeatable to 6 credits if content differs. Selected topics in human communication and its disorders.

HESP 499 Independent Study (1-3) Restriction: Permission of BSOS-Hearing & Speech Sciences department. Repeatable to 6 credits if content differs. A directed study of selected topics pertaining to human communication and its disorders.

HHUM -- Honors Humanities

HHUM 105 Honors Humanities: Introduction to the Arts and Humanities (3) Restriction: Must be an entering freshmen in the Honors Humanities Program. Credit only granted for: ARHU105 or HHUM105. Formerly: ARHU105. Introduction to the university, the different fields of the arts and humanities, and the history of how the university and the humanities have evolved across the world from ancient times to the present. Primary emphasis on reading and discussion of literary artifacts to assess the meaning and social status of the arts and humanities in the past and their personal and social value for the future.

HHUM 106 Honors Humanities: The Arts in Practice (3) Recommended: HHUM105. Restriction: Must be in the Honors Humanities Program. Credit only granted for: ARHU106 or HHUM106. Formerly: ARHU106. Intensive study of a particular form or category of art (e.g., Southern musical traditions, the graphic novel, one-act plays, the blogosphere, the personal essay)), especially as practiced in or relevant to the campus and metropolitan area. Students produce an instance of this art as their final project for the course.

HHUM 205 Second Year Seminar in Honors Humanities (3) Credit only granted for: ARHU205 or HHUM205. Formerly: ARHU205. Seminar on basic issues and methodologies in the humanities and arts.

HHUM 206 Honors Humanities Research Semester (1) Credit only granted for: ARHU206 or HHUM206. Formerly: ARHU206. Independent research and completion of students' chosen Keystone Projec developed during the preceding three semesters in HHUM105, HHUM106 and HHUM205. Will meet as a class during the early part of the semester and discuss issues in humanities scholarship including theory, methodology and pedagogy.

HHUM 288 Seminar: Selected Issues in Honors Humanities (3) Restriction: Must be in the Honors Humanities Program. Repeatable to 9 credits if content differs. Credit only granted for: ARHU288 or

HHUM288. Formerly: ARHU288. Seminar on important topics in Arts and Humanities for students in the Honors Humanities Program.

HHUM 328 Internship in Honors Humanities (1-3) Prerequisite: HHUM105; and permission of the Honors Humanities Director. Restriction: Sophomore standing or higher. Repeatable to 3 credits. Credit only granted for: ARHU328 or HHUM328. Formerly: ARHU328. Supervised service-learning in Honors Humanities.

HHUM 329 Undergraduate Teaching Assistantship (1-3) Prerequisite: HHUM106, HHUM205, and HHUM105; and permission of the Honors Humanities Director. Credit only granted for: ARHU329 or HHUM329. Formerly: ARHU329. Supervised pedagogical service-learning in the Honors Humanities curriculum.

HISP -- Historic Preservation

HISP 200 The Everyday and the American Environment (3) Also offered as: HISP615. An introduction to the theories of the everyday within the context of the American built environment. Focuses primarily on the American experience of underrepresented, minority, and/or immigrant communities; both historical and contemporary. Attempts to challenge what is meant by American in describing the American everyday built environment.

HISP 205 American Idols? Introducing Historic Preservation (3) Credit only granted for: HISP205 or HISP100. Formerly: HISP100. A critical introduction to the history, theory, and current issues of historic preservation in the U.S. Focus will be on four primary questions: What is historic preservation? How is preservation practiced in the U.S.? Why do we preserve, or what are some of the reasons to save parts of the built environment? Who benefits from preservation? Examination of texts, scholarly articles, and contemporary news articles used as basis for discussions about the implications of preservation policy within the plural society of the United States.

HISP 319 Special Topics in Historic Preservation (1-6) Repeatable to 12 credits. Students will explore technical aspects of preservation taught by practitioners whose expertise are of special benefit to undergraduate students.

HIST -- History

HIST 106 American Jewish Experience (3) Also offered as: JWST141. Credit only granted for: HIST106 or JWST141. History of the Jews in America from colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic, and political life.

HIST 110 The Ancient World (3) Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture; religion and myth in the ancient Near East; Greek philosophical, scientific, and literary invention; and the Roman tradition in politics and administration.

HIST 111 The Medieval World (3) The development of Europe in the Middle Ages; the role of religious values in shaping new social, economic, and political institutions; medieval literature, art and architecture.

HIST 112 The Rise of the West: 1500 - 1789 (3) History of early modern Europe. Development of the national consciousness of European peoples. Evolution of state power and bureaucracy, economic institutions, art, literature, science, and religion.

HIST 113 The Making of Modern Europe (3) Evolution of modern nation states since late medieval times. Industrial-economic structure and demography. Emergence of modern secular society.

HIST 120 Islamic Civilization (3) Also offered as: RELS120. Credit only granted for: HIST120 or RELS120. Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.

HIST 122 African Civilization to 1800 (3) History of Africa from earliest times to 1800. Topics of study include origins of African societies, Nile Valley civilization, medieval African states and societies, Islam, oral traditions, African slavery and the slave trade, and early African-European interactions.

HIST 123 Sub-Saharan Africa Since 1800 (3) Overviews early mid-19th-century changes in African societies, European conquest and African resistances in the late 19th-century, colonial states and societies, African nationalisms and decolonization and the independence era. Struggles over social, economic, and political changes are emphasized.

HIST 130 Hot Spots: Violence, Catastrophe and Civilian Conflict in Worldwide Historical Perspectives (3) Credit only granted for: HIST130 or HIST289A. Formerly: HIST289A. History behind late twentieth and early twenty-first century headlines; explores historical explanations for hot spots of unrest and civilian violence from the Congo to Srebrenica.

HIST 131 The History of the American Dream (3) Credit only granted for: HIST131 or HIST289J. Formerly: HIST289J. An introduction to the way Americans thought of themselves in the past, and their often conflicting visions of what constituted the American Dream. Central questions will include whether or not Americans have always envisioned their country as a land of equality, opportunity, democracy, and freedom and whether or not their ideas of what these values meant changed or remained the same over time.

HIST 132 Fighting Slavery (3) An examination of the different tools and tactics, means and methods that Americans have used to escape slavery or try to eliminate it.

HIST 133 "God Wills It!" The Crusades in Medieval and Modern Perspectives (3) Credit only granted for: HIST133, HIST289D, or RELS289D. Formerly: HIST289D. An examination of the identities and convictions both of the Western Europeans who participated in the Crusades and of the Easterners (Muslim, Christian, and Jewish) whom they encountered in the Holy Land. Focuses on the era of the first four great Crusades, from about 1095 to 1215. Consideration of the cultural impact of these movements on both Western Europe and the Middle East.

HIST 134 Spies, Assassins, Martyrs, and Witches: Famous Trials in American History (3) Examination of some of the most famous trials in American history and their enduring hold on the imagination.

HIST 135 Civil Discourse or Urban Riot: Why Cities Don't (Often) Explode (3) An examination of the mechanisms that promote peaceful co-existence in urban societies and a discussion of how and why city streets sometimes become violent.

HIST 136 Moneyland: Business in American Culture (3) Examines the interplay between America's stature as a business society and the public distrust of commerce, big business, and money.

HIST 137 Pursuits of Happiness: Ordinary Lives in the American Revolution (3) Credit only granted for: HIST289E or HIST137. Formerly: HIST289E. Investigates the search for personal fulfillment unleashed by the American Revolution; explores the many different meanings ascribed to the notion of the "pursuit of happiness" by Americans in the early national period.

HIST 141 Carbon: Element at the Center of History (3) Credit only granted for: HIST289B or HIST141. Formerly: HIST289B. Traces the history of the "carbon" economy and its impacts from the Industrial Revolution to the present; treats the role of modern dependence on fossil fuels and their role in geopolitics.

HIST 142 Looking at America through a Global Lens (3) Credit only granted for: HIST289I or HIST142. Formerly: HIST289I. Looking at America will focus on a thematic approach to the study of foreign -- negative and positive -- perceptions of America in the 20th century.

HIST 143 Power, Ritual, and Society in Western History (3) Credit only granted for: HIST289F or HIST143. Formerly: HIST289F. Introduces students to influential works of political thinking, in the Western tradition from classical Antiquity to the present, that treat the relationship between power, ritual, and society. Investigates ritual and its relationships to power, both in reality and the imagination of political thinkers.

HIST 189 Topics in History (1-3) Repeatable to 6 credits if content differs. Thematic exploration of a topic in history at an introductory level with emphasis on understanding what historians do and how history is relevant in the contemporary world.

HIST 200 Interpreting American History: Beginnings to 1877 (3) Credit only granted for: HIST156 or HIST200. Formerly: HIST156. The United States from colonial times to the end of the Civil War. Establishment and development of American institutions.

HIST 201 Interpreting American History: From 1865 to the Present (3) Credit only granted for: HIST157 or HIST201. Formerly: HIST157. The United States from the end of the Civil War to the present. Economic, social, intellectual, and political developments. Rise of industry and emergence of the United States as a world power.

HIST 204 Introduction to the History of Science (3) Credit only granted for: HIST174 or HIST204. Formerly: HIST174. An exploration of the roots of modern science from the ancient Greeks through the medieval and early modern periods. Focus on the men and women who helped to create the sciences and to change public perceptions of their disciplines.

HIST 205 Environmental History (3) An exploration of the way different societies have used, imagined, and managed nature. Includes examination of questions of land use, pollution, conservation, and the ideology of nature, especially but not exclusively in Europe and North America.

HIST 206 Introduction to the History of Technology (3) Credit only granted for: HIST175 or HIST206. Formerly: HIST175. Introduction to the history of major technological changes and innovations; examination of the revolutionizing potential of technology.

HIST 208 Historical Research and Methods Seminar (3) Restriction: Must be in History program. Repeatable to 6 credits if content differs. Credit only granted for: HIST208 or HIST220. Formerly: HIST220. Reading and research skills and methods. Research papers will be based on the topic of the seminar.

HIST 209 Selected Topics (3)

HIST 210 Love, Labor, and Citizenship: Women in America to 1880 (3) Also offered as: WMST210. Credit only granted for: HIST210 or WMST210. An examination of the economic, family, and political roles of colonial, slave, immigrant, and frontier women in America from pre-industrial colonial period through the early stages of 19th-century industrialization and urbanization.

HIST 211 Love, Labor, and Citizenship: History of American Women Since 1880 (3) Also offered as: WMST211. Credit only granted for: HIST211 or WMST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles including those for women's rights, birth control, and civil rights.

HIST 212 Women in Western Europe, 1750-Present (3) Also offered as: WMST212. Credit only granted for: HIST212 or WMST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

HIST 213 History of Sexuality in America (3) Credit only granted for: HIST213 or HIST219O. Formerly: HIST219O. Explores the social construction of sexualities from the first colonial settlement to the modern era in the United States. Analyzes the implications of these understandings for power relations in U.S history.

HIST 214 Rebellious Women (3) Credit only granted for: HIST214, HIST219B, or WMST298G. Formerly: HIST219B. Examination of British, French, and American women who rebelled against laws and cultural ideas that restricted women in their era. Explores changing assessments of these women across time.

HIST 215 Women in Western Europe to 1750 (3) Credit only granted for: HIST215 or HIST219A. Formerly: HIST219A. An exploration of the theories and rhetoric about the nature and existence of women in the West, focusing on the experience of women from the hegemony of Classical Greece to the French Revolution, an era that marks the beginning of a continuous process of change. Emphasis will be on the period between 1250 and 1750, when the Western European world was fundamentally altered in every aspect and in every level of society, culture, and government.

HIST 219 Special Topics in History (3)

HIST 220 The Atlantic World in the Age of Exploration, Conquest, and Settlement (3) Credit only granted for: HIST219V or HIST220. Formerly: HIST219V. Study of encounters, exchanges, and clashes between Native Americans, Europeans, and Africans in the early modern Atlantic World. Examines conquest and colonial systems; movement of men and women and mixing of peoples, and the persistence of native folkways.

HIST 221 Asian American History (3) Also offered as: AAST201. Credit only granted for: AAST201, HIST219G, HIST219M, or HIST221. Formerly: HIST219M and HIST219G. Introduction to the history of Asian Americans in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans in World War II, the Cold War, and the issues in the civil rights & post-civil rights era.

HIST 222 Immigration and Ethnicity in America (3) Also offered as: AAST222. Credit only granted for: AAST222, AAST298A, HIST219L, or HIST222. Formerly: HIST219L. The history of immigration and the development of diverse populations i the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race, and diversity in American culture.

HIST 224 Modern Military History, 1494-1815 (3) Survey of the military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the dynastic wars of the Valois and Habsburgs to the national wars of the French Revolution and Napoleonic Empire.

HIST 225 Modern Military History, 1815-Present (3) The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present.

HIST 232 The Historical Development of London (3) Restriction: Permission of Study Abroad Office required. Credit only granted for: GNED288 and HIST232. Formerly: GNED288. Study Abroad in London, England. The history of London, beginning with its foundation by the Romans, continuing with the city's progressive political and cultural domination of England, the British Isles and the British Empire, and concluding with a look at the city in the 20th century. Students look at London through the eyes of contemporaries and historians while forming their own impressions of the city during course-based walking tours of the city.

HIST 233 Empire! The British Imperial Experience 1558-1997 (3) Credit only granted for: HIST219P or HIST233. Formerly: HIST219P. Britain's empire from the mid-sixteenth century to the late twentieth century, focusing on the encounter between Britain and indigenous peoples. Topics include the origins of British imperialism in Ireland and North America, the slave trade, the East India Company and India, women in empire, transportation and the making of Australia, sex in empire, missionaries, racial theories, and decolonization.

HIST 234 History of Britain to 1485 (3) British history from Roman times to the 15th century. The Anglo-Saxon, Scandinavian, and Norman invasions; the coming of Christianity; Magna Carta, the development of Parliament, legal institutions, and the Common Law; the decline of medieval kingship.

HIST 235 History of Britain 1461 to 1714 (3) British history from the War of the Roses to the Hanoverian succession; Yorkist and Tudor society and politics; the Renaissance and Reformation in England, Henry VIII through Elizabeth I; 17th-century crises and revolutions; intellectual and cultural changes; the beginnings of empire; the achievement of political and intellectual order.

HIST 236 History of Britain 1688 to Present (3) British history from the Glorious Revolution of 1688 to the present. The revolution of 1688; the structure of 18th-century society and politics; economic and

social change in the Industrial Revolution; 19th- and 20th-century political and social reform; imperialism; the impact of the First and Second World Wars on British society.

HIST 237 Russian Civilization (3) An overview of Russian history stressing the main lines of development of the Russian state and the evolution of Russian culture to the present day.

HIST 240 Europe in the Twentieth Century (3) Credit only granted for: HIST240 or HIST337. Formerly: HIST337. Political, cultural, and economic developments in 20th-century Europe.

HIST 245 Reformers, Radicals, and Revolutionaries: The Middle East in the Twentieth Century (3) Credit only granted for: HIST219W or HIST245. Formerly: HIST219W. The 20th century was a period of dramatic changes in the Middle East. Within the global context of the two World Wars and the Cold War, countries in the region struggled with the effects of colonialism and painful processes of decolonization. The course offers a thematic-comparative approach to issues such as social and political reform, nationalism, the colonial experience, independence struggles, models of governance, political violence, and Islamism. Course lectures and the analysis and discussion of primary sources will lead students to understand that the peoples of the Middle East found answers to the challenges posed by Western dominance based on their specific historical, cultural and socio-economic circumstances.

HIST 250 Colonial Latin America (3) Also offered as: LASC250. Credit only granted for: HIST250 or LASC250. Introductory survey of the history of Latin America from pre-Columbian Indian cultures to the beginning of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments. Major themes include conquest, colonialism, indigenous culture, African slavery, religion, race and ethnicity, and gender ideologies.

HIST 251 Latin America Since Independence (3) Also offered as: HIST251. Credit only granted for: HIST251 or LASC251. Introductory survey of the history of Latin America from the era of independence (c. 1810-1825) through the early 1980s. Major themes include independence and sovereignty, postcolonialism and neocolonialism, nation- and state-building, liberalism, citizenship, economic development and modernization, social organization and stratification, race and ethnicity, gender relations, identity politics, reform and revolution, authoritarianism and democratization, and inter-American relations.

HIST 254 African-American History to 1865 (3) Survey of the principal developments in the history and culture of the peoples of African descent in colonial North America and the United States to 1865. Examines the African past, the Atlantic slave trade, variation in slavery, the growth of free black communities, the transformations of families and cultural forms, and patterns of resistance.

HIST 255 African-American History, 1865 - Present (3) An introductory course in the African-American experience in the United States from 1865 to the present. Topics include the aftermath of the Civil War on US race relations, the rise of segregation, northern migration, World War I and II, Civil Rights Movements, and the Black Power Movement.

HIST 266 The United States in World Affairs (3) A study of the United States as an emerging world power and the American response to changing status in world affairs. Emphasis on the relationship between internal and external development of the nation.

HIST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HIST 281 The Rabbinic Movement: History and Culture (3) Also offered as: JWST230. Credit only granted for: HIST281 or JWST230. Introduction to the Rabbinic movement and its history, first to seventh century CE. Survey of the essential texts of ancient Rabbinic literature, both halakhic (legal) and aggadic (non-legal).

HIST 282 History of the Jewish People I (3) Also offered as: JWST234. Credit only granted for: HIST282 or JWST234. Political, economic, social, and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

HIST 283 History of the Jewish People II (3) Credit only granted for: HIST283, HIST283H, JWST235, or JWST235H. Political, economic, social, and cultural development within Jewish history from the end of Middle Ages to the present. Special attention to twentieth-century developments including the Nazi holocaust and its aftermath, the Zionist movement and the creation of the State of Israel; rise of the contemporary American Jewish community.

HIST 284 East Asian Civilization I (3) An interdisciplinary survey of the development of East Asian cultures. An historical approach drawing on all facets of East Asian traditional life, to gain an appreciation of the different and complex cultures of the area.

HIST 285 East Asian Civilization II (3) A survey of the historical development of modern Asia since 1700. Primarily concerned with the efforts of East Asians to preserve their traditional cultures in the face of Western expansion in the 18th and 19th centuries, and their attempts to survive as nations in the 20th century.

HIST 286 The Jew and the City through the Centuries (3) Also offered as: JWST275. Credit only granted for: HIST286 or JWST275. Jewish urban experience from ancient times to the present. Public space and private space. The city and the sacred. Jewish ghettos and quarters. The struggle over modern Jerusalem.

HIST 287 Why the Jews? Historical and Cultural Investigations (3) Restriction: Must not have completed HIST282, HIST283, JWST234, or JWST235. Also offered as: JWST233. Credit only granted for: HIST287 or JWST233. Examines the history and culture of the Jews from the thirteenth century BCE/BC to the present through an examination of significant themes or problems (such as "religion" or "diaspora") that shape our understanding of the Jewish people. A primary focus in the course will be on texts, artifacts, and other cultural products by Jews and others that illustrate the history of the Jews help understand their cultural heritage.

HIST 299 Directed Research (1-3) Restriction: Permission of ARHU-History department. Repeatable to 9 credits if content differs. Closely guided research in primary sources for students currently enrolled in selected 100- or 200-level surveys in the Department of History.

HIST 304 The Baddest Decade: The 1970s in American Film and American History (3) Prerequisite: HIST201. Also offered as: FILM352. Credit only granted for: HIST304 or FILM352. The history of the United States and of its cinema in the 1970s.

HIST 306 History of Religion in America (3) Prerequisite: HIST200, HIST201, HIST210, HIST211, HIST213, HIST254, or HIST255; or must have completed HIST156 or HIST157; or permission of instructor. Also offered as: RELS346. Credit only granted for: HIST306 or RELS346. A history of

religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.

HIST 307 The Holocaust of European Jewry (3) Also offered as: JWST345. Credit only granted for: HIST307 or JWST345. Roots of Nazi Jewish policy in the l930's and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

HIST 310 History of South Africa (3) Formerly: HIST419E. Explores the roots of Apartheid and the anti-Apartheid movement from precolonial times to the present: the social history of work and identity, the rise of kingdoms (Zulu, Sotho), conquest and colonial administration, urban and rural mass politics, gender relations, and the transition to democracy.

HIST 319 Special Topics in History (3) Repeatable to 6 credits if content differs.

HIST 320 Early Christianity: Jesus to Constantine (3) Prerequisite: Must have completed one course in ancient history at the 200 level. Also offered as: JWST331. Credit only granted for: HIST320 or JWST331. Social and religious history of early Christianity from its origins in the first century to the reign of Constantine.

HIST 321 Biblical History and Culture (3) Also offered as: JWST324. Credit only granted for: HIST321 or JWST324. Formerly: HEBR333. Study of the political, social, and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archaeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

HIST 324 Classical Greece (3) The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Periclean Athens, the Peloponnesian War, and the intellectual circle of Socrates.

HIST 325 Alexander the Great and the Hellenistic Age (3) Prerequisite: HIST111 or HIST110; or permission of instructor. History of the Greeks 400-30 B.C.: Alexander and the changes he wrought in the Mediterranean world; the rise of monarchies and leagues; new directions in religion, art, literature, and science; and Hellenization of the Near East, including the Jews.

HIST 326 The Roman Republic (3) Prerequisite: HIST111 or HIST110; or permission of instructor. Ancient Rome 753-44 B.C., from its founding to the assassination of Julius Caesar. Rome's conquest of the Mediterranean world, the social and political forces that brought it about, and the consequent transformation and decline of the Republic.

HIST 327 The Roman Empire (3) Roman history from Augustus to Heraclius, 44BC-641AD: The Imperial court and government; the diversity of culture in provinces and cities and the progress of Romanization; Roman religion and its transformation in late antiquity; the Roman army and defense of the frontiers.

HIST 328 Selected Topics in History (3) Repeatable to 9 credits.

HIST 329 Special Topics in History (1-3) Repeatable to 9 credits.

HIST 330 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3) Also offered as: RELS340. Credit only granted for: HIST330 or RELS340. From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.

HIST 331 Europe in the High Middle Ages: 1000-1500 (3) Also offered as: RELS341. Credit only granted for: HIST331 or RELS341. Medieval civilization in the 11th through 15th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture, and political theory prior to the Renaissance.

HIST 332 Renaissance Europe (3) Prerequisite: HIST112 or HIST111; or permission of instructor. Also offered as: RELS342. Credit only granted for: HIST332 or RELS342. Intellectual developments in Italy and Northern Europe from 1300 to 1550 and their influence on the arts and religion; social and economic trends, including the rise of the commercial economy in cities; the family and the role of women in society; expansion of Europe overseas and the beginnings of colonization; emergence of the state and consequent changes in political theory.

HIST 333 The European Reformations (3) Prerequisite: HIST111 or HIST112; or permission of instructor required. Also offered as: RELS343. Credit only granted for: HIST333 or RELS343. Examination of developments in European religion between 1450 and 1700; the late-medieval Church and its critics; rise of Protestant thought in Germany and its spread throughout Europe; reform efforts in the Catholic Church; religious wars and violence and their impact on state and society; consequences of religious reform in society and its impact on the family and women.

HIST 336 Europe in the 19th Century, 1815-1919 (3) The political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War.

HIST 344 Revolutionary Russia (3) An exploration of the roots, dynamics, and consequences of the Russian Revolution of 1917. Major interpretations of the fall of tsarism, social and political forces at play, Leninism and Stalinism.

HIST 352 America in the Colonial Era, 1600-1763 (3) Prerequisite: HIST200, HIST210, HIST213, or HIST254; or must have completed HIST156; or permission of instructor. The founding of the English colonies in America and their European backgrounds, the reasons for the instability of colonial society to 1689 and the emergence of stable societies after 1689; the development of colonial regionalism, political institutions, social divisions, the economy, religion, education, urban and frontier problems in the eighteenth century.

HIST 353 America in the Revolutionary Era, 1763-1815 (3) Prerequisite: HIST200, HIST210, HIST213, HIST254, or HIST275; or must have completed HIST156; or permission of instructor. The background and course of the American Revolution and early nationhood through the War of 1812. Emphasis on how the Revolution shaped American political and social development, the creation of a new government under the Constitution, and the challenges facing the new nation.

HIST 354 Ante-Bellum America 1815-1861 (3) Prerequisite: HIST200, HIST210, HIST213, HIST222, HIST254, or HIST275; or must have completed HIST156; or permission of instructor. Traces how the strong nationalism after the War of 1812 transformed int the sectionalism that led to Civil War. The course concentrates on the controversies over slavery and other issues contributing to North-South antagonism, including Jacksonian democracy, capitalism, racism, immigration, manifest destiny and

religious, social, and intellectual movements, each of which produced its own social tendencies and tensions.

HIST 355 Civil War and the Rise of Industrialization, 1860-1900 (3) Prerequisite: HIST200, HIST201, HIST210, HIST213, HIST222, HIST254, HIST255, or HIST275; or must have completed HIST156 or HIST157; or permission of instructor. Credit only granted for: HIST355 or HIST364. Civil War, sectional and class conflicts and their impact on American life and institutions from the beginning of the Civil War through the Gilded Age; social, economic, and political reconstruction of the Union; industrialization, urbanization, and technological changes.

HIST 356 Emergence of Modern America, 1900-1945 (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or must have completed HIST157; or permission of instructor. The emergence of modern institutions and identities, 1900-1945. These institutions may include corporate enterprises and the welfare state; identities include homosexuality, the New Woman, and the New Negro.

HIST 357 Recent America: 1945-Present (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or must have completed HIST157; or permission of instructor. American history from the inauguration of Harry S. Truman to the present with emphasis upon politics and foreign relations, but with consideration of special topics such as radicalism, conservatism, and labor.

HIST 360 Women and the Civil Rights Movement (3) Twentieth-century U.S. civil rights movement from the vantage point of women, considering both women's involvement in the legal campaigns and political protests and the impact of civil rights struggles on women's condition, status, and identity.

HIST 361 Metropolitan Change and Modern America: Cities, Suburbs, Hinterlands (3) Prerequisite: HIST201, HIST211, HIST222, or HIST255; or must have completed HIST157; or permission of instructor. Credit only granted for: HIST419B or HIST361. Formerly: HIST419B. An exploration of the forces that have transformed metropolitan and rural life since the mid-19th century. What role have politics, policy, economics, and ideology/culture played in creating an urbanized and then a "suburbanized" nation?

HIST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HIST 371 Jews and Judaism in Antiquity II: First through Seventh Century (3) Recommended: HIST370. Also offered as: JWST326. Credit only granted for: HIST371 or JWST326. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformation of Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

HIST 373 Jews in Early Modern Times 1450-1750 (3) Recommended: HIST282 or JWST234. Also offered as: JWST333. Credit only granted for: JWST333, HIST373, HIST418C/JWST419C (Fall 2006, Fall 2004) or HIST419C/JWST419Y (Spring 2001). Formerly: HIST419C. Emergence of new powerful population centers, religious and cultural creativity, new forms of community, and radical messianic movements.

HIST 375 Modern Jewish History II: World Jewry Since 1870 (3) Also offered as: JWST344. Credit only granted for: HIST375 or JWST344. Continuation of HIST374.

HIST 376 History of Modern Israel (3) Also offered as: ISRL342. Credit only granted for: HIST376, ISRL342, or JWST342. History of modern Israel since the beginning of the Zionist settlement in 1882. Attention to different interpretations and narratives of Israel's history, including the historical and ideological roots of Zionism, the establishment of the State of Israel, ideological forces, wars, and the triumphs and crises of democracy.

HIST 382 Law and Culture in Late Imperial China (3) An exploration of Chinese law and its social/cultural implications in the late imperial period (1550s-1900s). Major interpretations of the conceptions of law and justice, the functioning of the judicial system, and local courts. An introduction to society and culture, politics and the bureaucracy, family and gender relations, and literature and popular religion of China through the lens of law.

HIST 386 Experiential Learning (3-6) Restriction: Permission of ARHU-History department; and junior standing or higher. The History Department's Internship program. Pre-professional experience in historical research, analysis, and writing in a variety of work settings.

HIST 395 Honors Colloquium I (3) Restriction: Permission of ARHU-History department; and must be in History program. History and theory: the conceptual underpinnings of the historical discipline. Students evaluate several contrasting theories of history. Prerequisite for other honors courses.

HIST 396 Honors Colloquium II (3) Prerequisite: Permission of ARHU-History department; or HIST395. Restriction: Must be in History program. Uses a seminar approach to examine a major problem of historical interpretation across two or more diverse cultures in different periods. Topics vary and include: religion and society, the city in history, gender, slavery and emancipation, and modernization.

HIST 398 Honors Thesis I (3) Prerequisite: HIST395 and HIST396. Restriction: Must be in History Honors program. Individual research and preparation of History Honors Theses.

HIST 399 Honors Thesis II (3) Prerequisite: HIST395, HIST396, and HIST398. Restriction: Must be in the History Honors program. Formerly: HIST398. Individualized research and preparation of History Honors Theses.

HIST 401 Science and Gender (3) Credit only granted for: HIST401 or HIST429R. Formerly: HIST429R. Examines the role of women and gender in the history of science. Includes consideration of barriers to women's participation in science; women's role as scientific subjects and researchers; and questions about the scientific construction of gender and the gendered construction of science.

HIST 404 History of Modern Biology (3) The internal development of biology in the 19th and 20th centuries, including evolution, cell theory, heredity and development, spontaneous generation, and mechanism-vitalism controversies. The philosophical aspects of the development of scientific knowledge and the interaction of biology with chemistry and physics.

HIST 405 Environmental History (3) An introduction to the key issues and methods of environmental history. The scope of the subject is discussed, as well as its relationship with other disciplines, such as ecology, anthropology, and geography. A primary focus is environmental change in history with emphasis on the American experience.

HIST 406 History of Technology (3) The changing character of technology in modern history, beginning with the Middle Ages. Concentrates on the Industrial Revolution and its aftermath, the nature of technological knowledge and the sources of technological change.

HIST 407 Technology and Social Change in History (3) Social consequences of technological innovations and the ways in which societies have coped with new technologies.

HIST 408 Senior Seminar (3) Restriction: Must be in History program. Repeatable to 6 credits if content differs. A capstone course for history majors, designed to increase historical knowledge and the ability to analyze texts and arguments. Topics will focus on the literature of a particular field and primary-source research.

HIST 412 History of Women and Gender in Africa (3) Prerequisite: HIST122 or HIST123; or permission of ARHU-History department. Credit only granted for: HIST412 or HIST428L. Formerly: HIST428L. An examination of socio-economic and cultural change in Africa from the dawn of the colonial era in the 19th century to independence in the mid-twentieth century. Major focus on how African women understood and responded to the expansion of European empires, changes in the colonial economy, and impact of westernization and urbanization.

HIST 413 Revolutionary Prophets: Political and Religious Movements in Africa and the Atlantic World (3) Recommended: HIST122 or HIST123. Credit only granted for: HIST413 or HIST419V. Formerly: HIST419V. In the expanding nineteenth-century and twentieth-century culture of the "Black Atlantic" world, investigates the intersection of African cultures, modern nationalism, prophetism, millenarianism, and social change.

HIST 415 Ideas and Politics in Europe Since 1900 (3) Restriction: Permission of instructor. Examination of intersection of ideas and politics in Europe since 1900. Focus will be on advocates of liberalism, social democracy, fascism, Nazism, communism, and conservatism and their impact on politics and policy since 1900.

HIST 416 History of Slavery and the Slave Trade in Africa (3) Credit only granted for: HIST416 or HIST419Y. Formerly: HIST419Y. Examines the history and impact of the slave trade on African states, societies, and economies. Investigates the meaning of slavery in Africa, the local uses of slavery there and Africa's connections to the Trans-Saharan, Red Sea, and Trans-Atlantic slave trades.

HIST 417 Colonial Encounters: Natives, Spaniards, and Africans in the New World (3) Recommended: HIST220 and HIST250. Credit only granted for: HIST417 or HIST428Y. Formerly: HIST428Y. An exploration of the discourses and practices of the Spanish colonial project in the New World and the ways in which Indians and Blacks were incorporated into or excluded from that project. Also examines native and African resistance and adaptation to Spanish rule, and the process of transformation and hybridization of Spanish, native and African cultures in Spanish America. An analysis of recent historiographical developments that have profoundly changed the understanding of the Spanish conquest and colonization of the New World.

HIST 418 Jews and Judaism: Selected Historical Topics (3) Prerequisite: HIST281, HIST283, HIST106, HIST286, or HIST282; or permission of instructor. Repeatable to 6 credits if content differs.

HIST 419 Special Topics in History (3) Repeatable to 9 credits if content differs.

HIST 421 Medieval Heresies (3) Credit only granted for: HIST408L or HIST421. Formerly: HIST408L. An examination of twelfth- and thirteenth-century heresies in the medieval West. Consideration of why so many heretics emerged, and how the church attempted to deal with them, and what effect their persecution had on Europe both then and later. Special attention given to groups that stood on the fine line between heresy and orthodox religion.

HIST 425 Imperial Russia (3) The rise and fall of the Russian Empire, Peter the Great to the collapse of tsarism in revolution. Emphasis on the evolution of autocracy, social groups, national identities, and cultural change.

HIST 427 Age of Decline: Britain 1914 to Present (3) British society since the First World War. The social, cultural, economic, and political impact of the First World War; labor and politics in the 1920s and 1930s; the inter-war Depression, appeasement and foreign policy; the social impact of the Second World War; the welfare state and nationalization of industry; the dissolution of Empire; the emergence of a consumer society; social criticism in the 1950s; the economic and political problems of the 1960s and 1970s.

HIST 428 Selected Topics in History (3) Repeatable to 9 credits.

HIST 429 Special Topics in History (3) Repeatable to 9 credits.

HIST 430 Tudor England (3) An examination of the political, religious, and social forces in English life, 1485-1603, with special emphasis on Tudor government, the English reformation, and the Elizabethan era.

HIST 431 Stuart England (3) An examination of the political, religious, and social forces in English life, 1603-1714, with special emphasis on Puritanism and the English revolutions.

HIST 433 Strategic Military Theory: Clausewitz (3) Credit only granted for: HIST419J or HIST433. Formerly: HIST419J. An exploration of Clausewitzian thought. Topics include the conduct of fighting and war planning, the relationship of war and politics, guerrilla war, the principles of concentration of force, the Clausewitzian trinity, absolute war and real war, unlimited and limited war, the relative strengths of the defense and the attack, and the intuitive sources of strategic decision.

HIST 436 Napoleon, the French Revolution, and the World (3) An argument for the broad continuity between the revolutionary and Napoleonic wars.

HIST 437 Modern France from Napoleon to DeGaulle (3) The changing political and cultural values of French society in response to recurrent crises throughout the 19th and 20th centuries. Students should have had some previous survey of either Western civilization or European history.

HIST 440 Germany in the Nineteenth Century, 1815-1914 (3) Examines the social, economic, cultural, and political development of the major German states before 1871 and of Germany, excluding Austria, from 1871 to 1914.

HIST 441 Germany Since 1900 (3) Course places Nazism in context of German and European history. Topics include collapse of German democracy and the establishment of the Nazi dictatorship; the role of Hitler; the response of political, military, economic, diplomatic, legal, media, theological elites and the broader population; the mix of terror, consent and coercion; propaganda and Nazi culture; contours of Nazi racial ideology and anti-Semitism and their impact on domestic and foreign racial policy; the economic history of the Nazi regime; foreign policy from rearmament to launching World War II to expansion and defeat; Jewish policy from the years of persecution to those of extermination; Nazi policy in Eastern and Western Europe, towards the United States, and towards North Africa and the Middle East; why the Allies won World War II and why and how Nazi Germany was defeated; the nature of the Allied occupation after 1945; the Nuremberg war crime trials; aftermath of facing and avoiding the crimes of the Nazi regime in West and East Germany.

HIST 442 Twentieth-Century Russia (3) Russia and the Soviet Union from the fall of the tsars to the post- communist present. Impact of Leninism, Stalinism, and Soviet Communism on state, society, culture, and nationality.

HIST 446 Old Regime France, 1589-1789 (3) Credit only granted for: HIST419I or HIST446. Formerly: HIST419I. An exploration of the demographic patterns of the seventeenth and eighteenth centuries. Examination of arguments that the population was governed by Malthusian constraints; the social structure of the time; the nature of the elites; the debate over the phrase "rise of the bourgeoisie"; the Enlightenment both as an intellectual phenomenon and as a social agent; and arguments that Enlightenment led to the desacralization of the monarchy.

HIST 447 Riot, Law, and Justice in European History (3) Credit only granted for: HIST428C or HIST447. Formerly: HIST428C. An examination of the role of violence and the attempt of law to contain or punish it. Major interpretations of societal codes of honor, retribution, and punishment, and how violence is governed by these codes.

HIST 450 Economic History of the United States to 1865 (3) Prerequisite: HIST200, HIST210, HIST213, HIST222, HIST254, HIST275, or HIST311; or must have completed HIST156; or permission of instructor. The development of the American economy from Columbus through the Civil War.

HIST 451 Economic History of the United States After 1865 (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or must have completed HIST157; or permission of instructor. The evolution of the U.S. economy from the end of the Civil War to the present; emphasis on macroeconomic policy making and relations among business, government, and organized labor.

HIST 452 Diplomatic History of the United States to 1914 (3) American foreign relations from the American Revolution to the beginning of World War I. International developments and domestic influences that contributed to American expansion in world affairs. Analyses of significant individuals active in American diplomacy and foreign policy.

HIST 453 Diplomatic History of the United States from 1914 (3) American foreign relations in the 20th century. World War I, the Great Depression, World War II, the Cold War, the Korean War, and Vietnam. A continuation of HIST452.

HIST 454 Constitutional History of the United States: From Colonial Origins to 1865 (3) The interaction of government, law, and politics in the constitutional system. The nature and purpose of constitutions and constitutionalism; the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events. The origins of American politics and constitutionalism through the Constitutional Convention of 1787. Major constitutional problems such as the origins of judicial review, democratization of government, slavery in the territories, secession, and civil war.

HIST 455 Constitutional History of the United States: Since 1865 (3) American public law and government, with emphasis on the interaction of government, law, and politics, and the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events. Major crises in American government and politics such as Reconstruction,the rise of corporate power, civil liberties during wartime, the New Deal era, the civil disorders of the 1960s.

HIST 457 History of American Culture and Ideas Since 1865 (3) Prerequisite: HIST201, HIST211, HIST213, HIST222, HIST255, or HIST275; or must have completed HIST157; or permission of instructor. A continuation of HIST456, from the Civil War to the present.

HIST 459 Society in America: Historical Topics (3) Repeatable to 6 credits if content differs. A consideration of selected aspects of American society from colonial times to the present. Special emphasis on regionalism, immigration, nativism, minorities, urbanization, and social responses to technological changes.

HIST 460 History of Labor in the United States (3) Prerequisite: HIST200, HIST201, HIST210, HIST211, HIST222, HIST255, or HIST275; or must have completed HIST156 or HIST157; or permission of instructor. The American working class in terms of its composition; its myths and utopias; its social conditions; and its impact on American institutions.

HIST 461 Blacks in American Life: 1865 to Present (3) Prerequisite: HIST201, HIST210, HIST211, HIST222, HIST254, HIST255, or HIST275; or must have completed HIST157; or permission of instructor. The role of the Black in America since slavery, with emphasis on 20th-century developments: migration from farm to city; growth of the civil rights movement; the race question as a national problem.

HIST 462 Slavery, Sectionalism, and the U.S. Civil War (3) Prerequisite: HIST200, HIST213, HIST222, HIST254, or HIST275; or must have completed HIST156; or permission of instructor. Slavery, sectionalism, and the coming of the Civil War. Resources and strategy of the Confederacy and the Union, the war's changing character, emancipation and its consequences, conditions on the home front, and the wartime origins of Reconstruction.

HIST 463 History of the Old South (3) The golden age of the Chesapeake, the institution of slavery, the frontier South, the antebellum plantation society, the development of regional identity, and the experiment in independence.

HIST 466 Immigration and Ethnicity in the U.S. (3) Prerequisite: AAST200, AAST201, AAST222, HIST200, HIST201, HIST221, or HIST222; or must have completed HIST156 or HIST157; or permission of ARHU-History department. Credit only granted for: AAST498L or HIST466. Seminar exploring historical problems relating to US immigration, race, and ethnicity since 1848, with emphasis on cultural impacts of migration on immigrants, their children, and U.S. society.

HIST 467 Women and Reform Movements in the Twentieth-Century United States (3)
Recommended: HIST201, HIST211, or HIST255. Credit only granted for: HIST467 or HIST429E. Formerly: HIST429E. Investigation of women's participation in such twentieth-century reform movements as the labor movement, the struggle for racial justice, social welfare reform, and women's movements. Will ask how race, class, and gender were implicated in the ways that women agitated for social political change.

HIST 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

HIST 471 History of Brazil (3) Prerequisite: LASC234, HIST251, HIST250, or LASC235; or permission of instructor. The history of Brazil with emphasis on the national period.

HIST 473 History of the Caribbean (3) Prerequisite: HIST112, HIST113, HIST122, HIST123, HIST240, HIST250, or HIST251. Offers a concise introduction to the history of the Caribbean regions

from the Columbian voyages to the 20th century. Special emphasis is given to the dynamics of local social and cultural formations within the framework of the political and economic history of the Atlantic world.

HIST 474 History of Mexico and Central America I (3) Prerequisite: LASC234, HIST251, or LASC235; or permission of instructor. History of Mexico and Central America, beginning with the pre-Spanish Indian cultures and continuing through European contact, conquest, and colonial dominance, down to the beginning of the Mexican War for Independence in 1810.

HIST 475 History of Mexico and Central America II (3) Prerequisite: LASC234, HIST251, or LASC235; or permission of instructor. A continuation of HIST474 with emphasis on the political development of the Mexican nation.

HIST 476 Jews in Medieval Times 1000-1450 (3) Recommended: HIST282 or JWST234; and (HIST330 or HIST331). Also offered as: JWST432. Credit only granted for: HIST419R, HIST476, JWST429M, or JWST432. Formerly: HIST419R. Social and cultural life of Jewish communities spread throughout Islam and Christendom. Major topics include the Gaonate, kehila organizations, legal, rationalist, and mystical thought, and the context of rising animosity against Jews linked to the Crusades and changing Church doctrines.

HIST 477 Transnational Blackness in the Americas (3) The African diaspora is a concept that attempts to comprehend the shared experiences of African-descended peoples throughout the world, particularly in the Americas. While many of these peoples identify with a particular nationality (being Brazilian, Cuban, or from the United States above or alongside being black, of color, or of African descent), many of them have forged connections with each other across national boundaries and recognized commonalities that transcend their national contexts. This class will use fiction, memoir, and recent historical scholarship to explore the history of the links that Afro-Latin American and Afro-North Americans have created in the nineteenth and twentieth centuries. Ultimately, the course will help us understand the historical possibilities and limitations of conceiving of African Americans as a hemispheric, transnational social group.

HIST 481 A History of Modern China (3) Modern China from 1644 to the People's Republic of China. Emphasis on the coming of the West to China and the various stages of the Chinese reaction.

HIST 482 History of Japan to 1800 (3) Traditional Japanese civilization from the age of Shinto mythology and introduction of continental learning down to the rule of military families, the transition to a money economy, and the creation of a townsmen's culture. A survey of political, economic, religious, and cultural history.

HIST 483 History of Japan Since 1800 (3) Japan's renewed contact with the Western world and emergence as a modern state, industrial society, and world power, 1800-1931; and Japan's road to war, occupation, and recovery, 1931 to the present.

HIST 484 Cultural History of the Chinese Revolutions (3) Recommended: HIST481 or HIST285. Credit only granted for: HIST419G or HIST484. Formerly: HIST419G. Examines the cultural origins, experience, and results of the Cultural Revolution in China.

HIST 486 Social Issues in Modern China (3) Recommended: HIST285; and HIST481. Credit only granted for: HIST419N (Fall2007) or HIST486. Formerly: HIST419N. Explores the problems surrounding family, community, and social life in modern China, including a focus on issues that affect

groups and subcultures within the population. Examines as well the political system's capacity to regulate this complex society.

HIST 491 History of the Ottoman Empire (3) Survey of the Ottoman Turkish Empire from 1300 A.D. to its collapse during World War I. Emphasis on the empire's social and political institutions and its expansion into Europe, the Arab East and North Africa.

HIST 492 Women and Society in the Middle East (3) Recommended: Must have completed prior coursework in Middle East studies or gender studies. Also offered as: WMST456. Credit only granted for: HIST492 or WMST456. Examines the customs, values, and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.

HIST 493 Victorian Women in England, France, and the United States (3) Also offered as: WMST453. Credit only granted for: HIST493 or WMST453. Examines the lives of middle- and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards, and women's rights.

HIST 495 Women in Medieval Culture and Society (3) Also offered as: WMST455. Credit only granted for: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

HIST 499 Independent Study (1-3) Restriction: Permission of ARHU-History department. Repeatable to 6 credits.

HLMN -- Hillman Entrepreneurs Program

HLMN 470 Fundamentals of Entrepreneurial Ventures (3) Restriction: Restricted to students in the Hillman Entrepreneurs Program. Credit only granted for: HLMN470, ENES460 or BMGT461. Additional information: HLMN470 may not count toward any BMGT major or minor degree. Learn the processes and skills needed to launch and manage start-up ventures, including technology startups. Assess the feasibility of a startup ventures, as well as how to apply best practices for planning, launching, and managing new companies by using real-world examples and in-depth case studies. Discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunity, assess the skills and talents of successful entrepreneurs, and learn models and approaches that help navigate uncertainty.

HLMN 471 Entrepreneurial Finance (3) Restriction: Restricted to students in the Hillman Entrepreneurs Program. Credit only granted for: HLMN471, ENES466 or BMGT365. Additional information: HLMN471 may not count toward any BMGT major or minor degree. Examine the elements of entrepreneurial finance, develop and analyze financial statements, focusing on technology-based startup ventures and the early stages of company development. Address key questions that challenge all entrepreneurs: how much money can and should be raised; when it should be raised and from whom; how to define a reasonable valuation of a company; and how to structure funding, develop employment contracts, and make exit decisions. Analyze the variety of financing models across a venture's life cycle, with an aim to understanding the incentives of each type of investor and the relative costs and benefits of each source of funding.

HLMN 472 Strategies for Innovation & Entrepreneurship (3) Restriction: Restricted to students in the Hillman Entrepreneurs Program. Credit only granted for: HLMN472, BMGT467, or ENES463.

Additional information: HLMN472 may not count toward any BMGT major or minor degree. Understand the process of technological change; the ways that firms come up with innovations; the strategies that firms use to benefit from innovation; and how to create new value not only through new products or services, but with novel technologies, business concepts, organizing structures, transaction/financing mechanisms, distribution channels, and market segmentation. Challenge students to think about how to create value and build a productive business organization with available resources (e.g. intelligence, insight, energy, initiative and personal relationships).

HLMN 473 Consulting in Tech Entrepreneurship (3) Restriction: Restricted to students in the Hillman Entrepreneurs Program. Additional information: HLMN473 may not count toward any BMGT major or minor degree. Apply the entrepreneurship/business principles learned in the classroom to real-world consulting projects. Gain practical experience by solving actual business situations and by dealing with ambiguity and uncertainty inherent in fast-moving technical organizations. Develop key skills in negotiation, group dynamics, organization, and planning.

HLSA -- Health Services Administration

HLSA 300 Introduction to Health Policy and Services (3) Prerequisite: Minimum grade of C- in CHEM131 and CHEM132. Restriction: Must be in Public Health Science program; and junior standing or higher. Credit only granted for: SPHL498P or HLSA300. Formerly: SPHL498P. This course provides a multidimensional view of public health policy and services. Through interactive discussion of assigned readings, team-based learning, and supplementary lecture, students will learn about the nature of and development of policy, public health policy, and financing and delivery of health care services. Concepts such as unintended consequences, association versus causation, evidence-based information, and the challenges of deconstructing available data, will be discussed throughout the course with the purpose of strengthening student abilities to analyze and challenge assumptions. This course will place a significant emphasis on a team-based learning approach to understanding the health care system and health care reform.

HLSA 484 Redesigning Health Care: Developing a Clinic to Meet Community Needs (3) Restriction: Must have completed a minimum of 60 credits. Additional information: Two sessions will be on-site at the Mona Clinic in Temple Hills, MD, and the remaining sessions will be taught in the University of Maryland's Academy for Innovation and Entrepreneurship. Provides an opportunity for students to learn a key entrepreneurial skill, Design Thinking, while helping to build, reshape, redesign and transform delivery of health care in the Mona Center, a new community center and clinic in Prince George's County. This new, modern vision for a health and wellness clinic embraces student involvement in designing, planning and contributing to innovative programs, solutions, and processes to improve the clinic's ability to meet community and patient needs by addressing the social determinants of health as well as traditional clinical health status. Students in the class will develop empathy for patients, providers and other stakeholders, define problems, select a specific problem for intervention, understand problems based on stakeholder input, ideate, reframe and suggest options to solve or address the problem, prototype solutions, test ideas, and make recommendations to inform implementation and ongoing measurement and monitoring of impact.

HLSC -- Integrated Life Sciences

HLSC 100 Students in the University: Integrated Life Sciences (1) Restriction: Must be in the Honors College Integrated Life Sciences program. Credit only granted for: EDCP108O, HLSC100, HONR100, or

UNIV100H. In a small classroom setting, Integrated Life Sciences students learn about academic resources on and off campus.

HLSC 207 Principles of Biology III Organismal Biology (3) Prerequisite: (BSCI160 and BSCI161; or BSCI106); and (BSCI170 and BSCI171; or BSCI105). Or students who have taken courses with comparable content may contact the department. Restriction: Must be in the Honors College Integrated Life Sciences program. Credit only granted for: BSCI207, BSCI279D, or HLSC207. The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.

HLSC 322 Principles of Genetics and Genomics (4) Prerequisite: HLSC207. Restriction: Must be in a major in UGST-HCOL-Integrated Life Sciences Program. Credit only granted for: HLSC322 or BSCI222. Principles and mechanisms of heredity and gene expression, with a focus on the application of genomics to contemporary medicine, biotechnology, and societal issues.

HLSC 374 Mathematical Modeling in Biology (4) Prerequisite: MATH130; or MATH140. And MATH131; or MATH141. Restriction: Must be in a major in UGST-HCOL-Integrated Life Sciences Program. Also offered as: BSCI374. Credit only granted for: BSCI374, BSCI474, or HLSC374. Students will learn empowering mathematical techniques through the understanding of biological models. Models are chosen from a variety of biological disciplines. Mathematical skills that will be developed along the way include: solving non-linear difference equations, eigenvector analysis, and the implementation of these algorithms as computer models.

HLSC 377 Research and Application in Life Sciences (3) Prerequisite: HLSC207 and HLSC322. Restriction: Must be in the Integrated Life Sciences honors program. A skills based course covering current research in the life sciences emphasizing novel approaches to complex real-word problems having a biological basis.

HLTH -- Health

HLTH 106 Drug Use and Abuse (3) An interdisciplinary analysis of contemporary drug issues and problems. The course will examine physiological, psychological, social, philosophical, historical, legal and health aspects of drug use and abuse. Special attention will be focused on those general motivations for drug use that attend life on the college campus.

HLTH 130 Introduction to Public and Community Health (3) Restriction: Must not have completed HLTH105; and non-majors must have 45 or fewer credits. Credit only granted for: HLTH105 or HLTH130. Formerly: HLTH105. An introduction to the theory and practice of public and community health. The influence of public health professionals on the past, present, and future health status of society through the examination of critical health issues will be described. Programming models, theories and policy development are included.

HLTH 140 Personal and Community Health (3) Meaning and significance of physical, mental and social health as related to the individual and to society; important phases of national health problems; constructive methods of promoting health of the individual and the community.

HLTH 200 Introduction to Research in Community Health (3) Prerequisite: Permission of SPHL-Behavioral & Community Health department. An overview of specific components and steps involved in

the community health research process. Content includes, foundations of research, sampling, measurement design, and analysis in a community context.

HLTH 222 Optimizing Health & Athletic Performance (3) The conceptual & theoretical knowledge surrounding the enhancement of health & physical performance through sound behavioral & nutritional practices. Topics include pre post activity fueling, hydration, body composition management, commercial supplements, and health behavior strategies.

HLTH 230 Introduction to Health Behavior (3) Prerequisite: Must have completed or be concurrently enrolled in HLTH130. Psychological, social psychological, and sociological approaches to the following health areas: development of health attitudes and behavior, patient-provider interaction and the organization of health care.

HLTH 234 Global Health Messages: Understanding Exposure & Impact. (3) Using a global perspective, this course teaches students to be critical consumers of current and historical health communication interventions. It also provides students with the skills to develop media interventions that target specific and general populations. Students will discover the array of diverse media messages that influence the health and well-being of individuals and communities.

HLTH 242 Sex in the City: An Interdisciplinary Public Health Assessment (3) Restriction: Must be in Community Health program; or non-major with less than 45 credits. An examination of risky sexual behavior from an interdisciplinary public health perspective. How biological psychological, as well as sociological influences make individuals vulnerable to practicing risky sexual behavior and how public health systems and government policies attempt to identify and prevent the spread of disease.

HLTH 244 Public Health and Aging (3) Restriction: Must be in Community Health program; or non-major with less than or equal to 45 credits. Additional information: Priority in enrollment will be given to Community Health (HLTH) majors. Can be used by HLTH majors as a health elective. A broad overview of public health and aging issues as well as the barriers to achieving a healthful lifestyle through old age. Emphasis will be placed on socio-cultural, historical, political, economic, and behavioral factors.

HLTH 285 Controlling Stress and Tension (3) Health problems related to stress and tension. Analysis of causative psychosocial stressors and intervening physiological mechanisms. Emphasis on prevention and control of stress through techniques such as biofeedback, meditation and neuromuscular relaxation.

HLTH 289 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 300 Biostatistics for Public Health Practice (3) Prerequisite: Must have completed or be concurrently enrolled in HLTH200. Restriction: Must be in Community Health program. Also offered as: EPIB300. Credit only granted for: EPIB300 or HLTH300. An examination of biostatistical concepts and procedures as they relate to contemporary issues in public health. Focus on applications, hands-on-experience, and interpretations of statistical findings in public health research.

HLTH 301 Epidemiology for Public Health Practice (3) Prerequisite: Minimum grade of C- in HLTH300. Restriction: Must be in one of the following programs (Community Health; Public Health Science). Also offered as: EPIB301. Credit only granted for: EPIB301 or HLTH301. An examination of the discipline of epidemiology and its application to public health issues and practices, covering current epidemiological concepts and methods.

HLTH 325 Poor in America: Health and Wellbeing (3) Recommended: HLTH130; or HLTH140. Using the ecological framework, students will explore the complicated relationship between poverty and health and well-being in the United States.

HLTH 352 Portrayal of Drug Use and Addiction on Screen: Does Hollywood get it Right? (3) Through comparative analysis of public health research evidence with portrayals used in film, the student gains a deep understanding of substance abuse, its consequences, and theoretical foundations of its biopsychosocial etiology and radiating effects on families, communities and society.

HLTH 366 Behavioral and Community Issues in Public Health (3) Prerequisite: HLTH130, HLTH230, PSYC100, SOCY100, SOCY105, or ANTH260. Restriction: Must be in Public Health Science program; or permission of SPHL-Behavioral & Community Health department. And must have earned a minimum of 45 credits. Additional information: This course will initially be restricted to Public Health Science (PHSC) majors, but could ultimately be opened to other majors, particularly those in HLTH. The exploration of how social and behavioral science theories and public health concepts and methods can be applied to both the health-illness experience and community interventions.

HLTH 371 Communicating Safety and Health (3) Restriction: Must be in a major within SPHL-Behavioral & Community Health department. The communication and evaluation of safety and health information. Emphasis on various types of communications and recipient factors which contribute to their success or failure.

HLTH 374 Drugged, Drowsy & Distracted Driving: traffic safety issues for the new millenium (3) Prerequisite: Minimum grade of C- in HLTH200 and HLTH300. Restriction: Must be in Community Health program. An in-depth examination of the current status of research, historical trends and policies regarding impaired driving. Designed to provide exposure to the research process for understanding the behavioral factors that contribute to impaired driving in our society.

HLTH 377 Human Sexuality (3) The biological and developmental aspects of human sexuality; the psychological and emotional aspects of sexual behavior; sexual identity; the historical, cultural, social, linguistic, legal and moral forces affecting sexual issues; the importance of communication, disclosure and intimacy in interpersonal relationships; and research trends in the area of human sexuality.

HLTH 386 Experiential Learning (3-6) Prerequisite: Permission of SPHL-Behavioral & Community Health department. Restriction: Junior standing or higher.

HLTH 389 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 391 Principles of Community Health I (3) Prerequisite: HLTH140, HLTH230, HLTH300, and BSCI202. Corequisite: HLTH301. Restriction: Must be in Community Health program. Broad overview of community health. Health promotion, consumer health, public health, school health, environmental health, preventive medicine, human biology and the health care system are examined. Each area's contribution to community health is discussed.

HLTH 410 Honors Seminar (3) Prerequisite: HLTH200; and must have completed 2 other courses in HLTH. Restriction: Minimum cumulative GPA of 3.5; and must have completed 45 credits before applying. Undergraduate majors with a strong academic record are provided the opportunity to engage in challenging educational experiences related to the social and behavioral aspects of public health. Students

will learn the skills and knowledge to develop, propose, defend, and complete an honors thesis or honors project.

HLTH 420 Effective Strategies for Public Health Practice (3) Prerequisite: Minimum grade of C- in HLTH301 and HLTH391. Corequisite: HLTH490. The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of successful public health presentation strategies. Special problems associated with public health presentations are discussed, and students become familiar with a variety of resources as well as with planning for and implementing demonstration presentations.

HLTH 430 Health Education in the Workplace (3) A survey of the role of health education in work settings. Examination of occupational stress, the health effects of shift work, women's health in the workplace, health education approaches to informing workers and management, and health promotion programs in the workplace.

HLTH 434 Introduction to Public Health Informatics (3) Restriction: Must be in one of the following programs (Community Health; Public Health Science) ; and must have earned a minimum of 60 credits. Credit only granted for: HLTH434 or HLTH498E. Formerly: HLTH498E. Provides an overview of the field of public health informatics and the influence of technology on the public's health and well-being. Emphasizes the application of various technologies and computer/internet applications to support public health research and practice, including strategies to address new and emerging threats.

HLTH 460 Minority Health (3) Prerequisite: HLTH140 or HLTH230; or permission of SPHL-Behavioral & Community Health department. Restriction: Must be in a major within SPHL-Behavioral & Community Health department. Health concerns of U.S. ethnic minority groups and factors placing them at elevated risk for disease and injury. Health education concepts and strategies to reduce disparities between their health status and the health status of the general population.

HLTH 471 Women's Health (3) Restriction: Must be in a major within SPHL-Behavioral & Community Health department; or must be in a major within ARHU-Women's Studies department. Also offered as: WMST471. Credit only granted for: HLT471 or WMST471. The historical, physiological, psychological, and sociological mechanisms which contribute to women's health. Topics will include gynecological concerns and reproductive health; nutrition, exercise; violence; substance use/abuse; and the health of special populations.

HLTH 476 Death Education (3) Examination of the genesis and development of present day death attitudes and behavior by use of a multidisciplinary life cycle approach.

HLTH 489 Field Laboratory Projects and Workshop (1-6) A course designed to meet the needs of persons in the field with respect to workshop and research projects in special areas of knowledge not covered by regularly structured courses.

HLTH 490 Principles of Community Health II (3) Prerequisite: HLTH301 and HLTH391. Corequisite: HLTH420. Students will be involved in the applied aspects of community health education. They will work with specific local community groups, planning, developing, implementing and evaluating a community health project. Health agencies and community health marketing techniques will be investigated.

HLTH 491 Community Health Internship (12) Prerequisite: HLTH490. Restriction: Must be in Community Health program. Integrating theory with practice in a community health setting.

HLTH 498 Special Topics in Health (3) Repeatable to 6 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

HONR -- Honors

HONR 100 Honors Colloquium (1) Restriction: Permission of University Honors Program. Attendance at various additional activities and events is required. Reading and discussion on the personal and social value of higher education; development of a coherent general education program; exploration of the educational and cultural resources of the campus and metropolitan area; participation in a community service project; and other activities designed to broaden students' conception of what it means to be an educated person.

HONR 149 Honors Colloquium (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A colloquium on a variety of topics.

HONR 168 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 169 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 208 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 209 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 217 Life, The Multiverse and Everything: Developing an Individual Cosmovision (3) In this Honors seminar, students pursue personal cosmologies in light of our contemporary core "Western" scientific world-view and a selection of other ancient and indigenous cosmographies for comparison including those of Mesoamerica, the Inca, the Egyptians or the Chinese.

HONR 218 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 219 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 228 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 229 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 238 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 239 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 248 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 249 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 258 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 259 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 268 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 269 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 278 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 279 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 288 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 289 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 298 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 299 Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs.

HONR 318 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 328 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

HONR 338 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 348 Advanced Honors Seminar (1-3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

HONR 349 Honors Colloquium (1-3) Restriction: University or departmental Honors student. Or permission of instructor; and permission of Director of University Honors. Repeatable to 3 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. Subjects may vary.

HONR 358 Honors Practicum (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. Formerly: HONR379. For student section leaders of HONR100 or HONR200.

HONR 359 Honors Workshop (1-6) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. Honors workshops are small seminar classes which concentrate on skill development.

HONR 368 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

HONR 378 Advanced Honors Seminar (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

HONR 379 Honors Independent Study (1-6) Restriction: Permission of University Honors Program. Repeatable to 6 credits if content differs. Involves reading or research directed by individual faculty, especially in areas outside of the student's major. Open only to University honors students.

HONR 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

HONR 388 Honors Thesis or Project (3-6) Repeatable to 6 credits if content differs. Formerly: HONR370.

HONR 389 Guided Honors Teaching (3) Restriction: Permission of University Honors Program. Repeatable to 9 credits if content differs. For HONR100 and HONR200 section leaders. Guided teaching experience for selected students in the University Honors Program.

IDEA -- Academy for Innovation & Entrepreneurship

IDEA 247 Introduction to Peer Innnovation Coaching (2) Restriction: Sophomore standing or higher; and permission of Academy for Innovation and Entrepreneurship. Credit only granted for: IDEA247 or IDEA250. Formerly: IDEA250. Additional information: Participation in the course requires students to submit an application, be interviewed and selected by the Academy for Innovation and Entrepreneurship. Prepares you as an Academy for Innovation and Entrepreneurship Peer Innovation Coach (PIC), where you will be coaching and guiding student teams in the classroom as they experiment with using the design thinking process. You will first have the opportunity to sharpen your own understanding of the design thinking process by applying it to a team design challenge, as well as further explore each step through

readings, discussion and reflection. You will then focus on the concept of creativity and learning about the mindsets that are conducive to innovation. Towards the end of the semester, you will focus on the theories and methods related to effective coaching. Throughout the course, you will observe and practice coaching alongside AIE Facilitators as they teach design thinking modules in various courses across campus. As you get more familiar and comfortable with the design thinking curriculum, you will have the opportunity to facilitate parts of classes or activities at some of our workshops and special events, such as departmental/campus-wide design challenges.

IDEA 369 Peer Innovation Coaching (2) Prerequisite: IDEA247; and permission from the Academy for Innovation and Entrepreneurship. Repeatable to 6 credits. Formerly: IDEA358A. Deepen your role as an Academy for Innovation and Entrepreneurship Peer Innovation Coach (PIC), where you will be coaching and guiding student teams in the classroom as they learn to use innovation methods. There is both an experiential component and a classroom component. The experiential component involves coaching and teaching innovation class sessions throughout campus, and the classroom component involves discussions, reflection assignments and scenario role-playing to help improve your coaching and teaching. While some of the content in the classroom component will be seeded by a set of course readings, much of it will also be seeded by your own experiences in the experiential component.

IMMR -- Immigration Studies

IMMR 200 Introduction to Immigration and Migration Studies (3) Introduces concepts and theoretical interpretations about the causes of international migration; provides an historical overview of the main flows of immigration to the U.S.; analyzes economic, political, social, and cultural aspects that impact the immigrants' settlement process.

IMMR 219 Special Topics in Immigration and Migration Studies (3) Repeatable to 6 credits if content differs. Thematic exploration of a topic in immigration or migration studies history at an introductory level withemphasis on understanding how the movement of people is relevant in the contemporary world.

IMMR 319 Special Topics in Immigration and Migration Studies (3) Repeatable to 6 credits if content differs. Thematic exploration of a topic in immigration or migration studies with emphasis on understanding how the movement of people is relevant in the contemporary world.

IMMR 399 Internship in Immigration/Migration Studies (1-6) Prerequisite: HIST222, IMMR200, or IMMR400; and permission of the Center for Global Migration Studies required. Restriction: Minimum cumulative GPA of 2.5; and must have earned a minimum of 60 credits. Repeatable to 6.0 credits if content differs. Additional information: This course is intended primarily for students seeking the Immigration and Migration Studies transcript notation, but exceptions will be considered for students with educational or career interests that lie in this area. Student internships must be approved by the Executive Director of the Center for Global Migration Studies. Students must secure an appropriate faculty mentor for the internship course. An internship course will be approved only if a faculty supervisor is available. Internship experience with an organization that works with or studies migration or immigrant populations. This experiential learning course provides training that enriches the students' academic field of study and the IMMR transcript notation. Students submit a final written report of how the experience ties into their major field of study.

IMMR 400 Vital Voices: Oral Histories of the Immigrant Experience (3) Recommended: HIST222; or IMMR200. Credit only granted for: HIST428N or IMMR400. Formerly: HIST428N. An exploration of the dynamic subject of U.S. immigrant experience through the scope of individual immigrant life stories

in a global context. Course will include an overview of U.S. and global immigration patterns and an introduction to the practice of oral history.

IMMR 419 Special Topics in Immigration and Migration Studies (3) Repeatable to 6 credits if content differs. Thematic exploration of a topic in immigration or migration studies history with emphasis on understanding how the movement of people is relevant in the contemporary world.

INAG -- Institute of Applied Agriculture

INAG 100 Introduction to Plant Science (4) Restriction: Must be a student in the Institute of Applied Agriculture; or permission of AGNR-Institute of Applied Agriculture department. Credit only granted for: INAG100, PLSC100, or PLSC101. A general introduction to plant science designed to provide the students with a working knowledge of the fundamental structures and processes of plants. Content includes plant anatomy, physiology, genetics and environmental relationships.

INAG 102 Agricultural Entrepreneurship (3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Additional information: Priority in enrollment will be given to students within the Institute of Applied Agriculture. May not count toward any BMGT major or minor requirement. This course introduces fundamental concepts related to launching a profitable agricultural business. Topics include idea generation, opportunity recognition, conducting feasibility studies, assembling the entrepreneurial team, and financing the new venture, among others. Students will learn knowledge and skills relevant to starting a new agricultural business.

INAG 103 Agricultural Marketing (3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Additional information: Priority in enrollment will be given to students within the Institute of Applied Agriculture. Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor. Principles of market demand are used to develop a consumer oriented market strategy for agricultural businesses. Topics include market structures, target marketing, market segmentation, niche marketing and direct marketing. Market concepts unique to agriculture products are also covered.

INAG 105 Soils and Fertilizers (3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Soils and Fertilizers is an introductory course for students entering careers related to applied agricultural production. The course is divided into three subject areas; soil properties, soil fertility, and environmental concerns of using soils for agricultural production. Emphasis is placed upon the characteristics of Maryland soils which are similar to the soils in the mid-Atlantic region. The importance of nutrient management and non-point source pollution of the Chesapeake Bay are covered in the course.

INAG 106 Pesticide Use and Safety (2) Additional information: Priority enrollment will be given to students in the IAA program or to students in the College of Agriculture and Natural Resources (AGNR). An overview of pesticide use and safety. Topics include environmental protection, labeling, personal safety, first aid, formulation and chemistry, equipment, disposal, storage, record-keeping and liability. The course prepares students to take the Maryland State test for a private applicator's license.

INAG 110 Oral Communication (3) Credit only granted for: COMM107, COMM200, INAG110, JOUR130, THET285. A study of how perception, self-concept, verbal and nonverbal communications affect the communication process as it emerges in the work place. The course provides skill training in

speech writing, public speaking, group communication, interpersonal communication, listening, and responding.

INAG 123 Introduction to Sustainable Agriculture (3) An introductory courses that provides an overview of the principles and practices of sustainable agriculture. Students explore the economic, social, and environmental impacts of agriculture, and relate the principles of sustainability to various agricultural production practices and systems.

INAG 132 Agricultural Leadership and Teamwork (3) Restriction: Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space. Introduces fundamental concepts related to leadership and teamwork in agricultural organizations. Topics include leadership practices and skills; relationships between leadership, authority, power, and ethics; team decision-making and management; and organizational culture and change. Students will develop effective leadership skills necessary for leading agricultural organizations.

INAG 201 Agricultural Human Resources Management (3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Additional information: May not count toward any BMGT major or minor requirement. The course introduces students to the study and application of the basic principles of human relations and personnel management. A variety of approaches to recruiting, training, delegating, motivating, and appraising employees are among the topics discussed.

INAG 203 Agricultural Finance (3) Restriction: Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space. Additional information: Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor. This course introduces fundamental concepts related to the financial management of an agricultural business. Topics include financial statement analysis, financial planning, the relationship between risk and return, the time value of money, costs associated with borrowed funds, sources of capital, financial markets and intermediaries in agriculture, and personal finance, among others. Students will gain financial knowledge and skills necessary for managing a profitable agricultural business.

INAG 204 Agricultural Business Management (3) Recommended: INAG102. Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Additional information: Priority in enrollment will be given to students within the Institute of Applied Agriculture. May not count toward any BMGT major or minor requirement. This course integrates various concepts related to managing a profitable agricultural business. Topics include business management and decision making, preparing a business plan, financial analysis and budgeting, risk and investment management, and small business taxes, among others. Students will gain relevant knowledge and skills as they complete the comprehensive business plan for successfully managing an agricultural business.

INAG 205 Analyzing Alternative Enterprises (3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Additional information: Priority in enrollment will be given to students within the Institute of Applied Agriculture. This course identifies and analyzes alternative crops, livestock, and other agricultural business enterprises. Students assess sustainability, geographic adaptability and potential profitability of businesses through lectures, class projects, and presentations from farmers, entrepreneurs, and managers

engaged in alternative enterprises. Topics may include value added approaches, organic crop production, and recreational agricultural pursuits.

INAG 206 Agricultural Business Law (3) Restriction: Students at the Institute of Applied Agriculture (IAA); or students at the College of Agriculture and Natural Resources (AGNR); or permission may be granted to other students based on available space. Additional information: Course cannot be used to fulfill a requirement for a Robert H. Smith School of Business major or minor. This course introduces various legal concepts and their relationships to agricultural business and transactions. Topics include torts, criminal law, contracts, promissory notes, property, partnerships, business entities, employment, and bankruptcy, among others. Students will gain a general understanding of the legal system that will help them manage and/or operate profitable agricultural businesses.

INAG 207 Power and Machinery (3) Prerequisite: INAG250 or PLSC204. Restriction: Must be in a major within the AGNR-Institute of Applied Agriculture department; or permission of AGNR-Institute of Applied Agriculture department. Additional information: Priority will be given to IAA students and permission will be granted to AGNR students and others on a space available basis. The basic principles of compact equipment management, including selection, maintenance, operation, adjustment and troubleshooting of agricultural machinery and power units will be studied. The methods of power development, measurement, transmission through power trains both mechanical and hydraulic will be studied. A systematic disassembly, analysis, diagnosis and reassembly of a small engine will be completed by each student.

INAG 213 Crop Production Practices (3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Additional information: Priority in enrollment will be given to students within the Institute of Applied Agriculture. Crop Production Practices covers the applied methods of producing various vegetable and agronomic crops in Maryland. This course focuses on commercial scale production where economics impact production decisions. Topics include crop rotation, cropping systems, nutrient management, and integrated pest control strategies. Throughout the course, economically, socially and ecologically sustainable production practices will be addressed.

INAG 224 Greenhouse and Plant Production Management (3) Restriction: This coures is open to students in AGNR. Priority enrollment will be given to students in the Institute of Applied Agriculture. All other majors will be granted permission based on available space. Credit only granted for: INAG 114 or INAG 224. Topics will include the principles of managing greenhouses: structures, coverings, lighting, irrigation, heating and cooling systems; and discusses the effects on plant production. Plant propagation methods and environments will be analyzed and practiced.

INAG 231 Insects of Ornamentals and Turf (3) Recommended: PLSC253, PLSC254, or PLSC305; or INAG107. Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Additional information: Priority enrollment will be given to students in the IAA program. A study of the major insect pests and beneficial insects of ornamental plants and turfgrasses in the Mid-Atlantic region. The student will be responsible for insect identification, life history, and control practices of approximately 100 insects. An insect collection consisting of both insect pests and beneficial insects is required.

INAG 235 Irrigation and Drainage (3) Restriction: Permission of instructor. Also offered as: PLSC235. Credit only granted for: INAG235, PLSC235 or PLSC489I. Formerly: PLSC489I. Additional information: Priority enrollment will be given to IAA and PLSC majors. By permission for available seats. An overview of U.S. and state water doctrines and plant water use rates Irrigation systems for

residential and athletic field use will be discussed covering such topics as hydraulics, sprinkler spacing, pipe selection and sizing, pumps, controllers, valves, and irrigation trouble shooting. Surface and subsurface drainage for turfgrass sites will also be covered.

INAG 237 SURVEYING AND GPS APPLICATIONS IN AGRICULTURE (3) Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-College of Agriculture & Natural Resources. Additional information: Course is open to Institute of Applied Agriculture students and permission will be granted to others in the College of Agriculture and Natural Resources based on available seats. IAA student must have completed INAG 101 and INAG 104. The principles of land measurement using conventional surveying techniques to determine distance, elevation change or topography, Global Positioning System (GPS) devices and mapping, utilizing Graphical Information Systems (GIS) will be the focus of this course. Students will use surveying equipment and GPS receivers and other data collection instruments to collect land data features. Data will be mapped and analyzed using software including: Trimble GPS Pathfinder Office, and ESRI ArcGIS software. Students will download and integrate available on-line geo-referenced map images or other data to support the development of their GPS collected data. Spatial analysis software will be used to map problem areas of field agronomic factors.

INAG 244 Herbaceous Plants (3) Restriction: Must be in a major within the AGNR-Institute of Applied Agriculture department; or must be in a major in AGNR-College of Agriculture & Natural Resources; or permission of AGNR-Institute of Applied Agriculture department. Also offered as: PLSC244. Credit only granted for: INAG244 or PLSC244. Herbaceous plants are integral components of residential and commercial landscapes. Students will become familiar with 250 annual and perennial plants. The emphasis will be on plant management requirements and seasonal variation in the landscape.

INAG 248 Topics in Sustainable Agriculture (1) Recommended: INAG123. Repeatable to 2 credits if content differs. Additional information: The topics covered in this course change every year, guided by student interest, current research, and availability of guest speakers. Through readings, class discussions, and guest speakers this one-credit seminar course exposes students to current trends, concerns and research in sustainable agriculture. It allows students to explore various interest areas and discuss a variety of topics as they relate to sustainable practices.

INAG 250 Fundamentals of Agricultural Mechanics (3) Restriction: Permission of AGNR-Institute of Applied Agriculture department. Also offered as: PLSC204, PLSC204. Credit only granted for: ENBE200 or PLSC204 or INAG250. Formerly: ENBE200. Additional information: Priority given to IAA majors and AGNR students whose major requires this course. Permission will be granted to other students on seats available basis. A comprehensive course that teaches the fundamentals of agricultural related mechanics. Lecture and lab exercises will cover the broad range of topics associated with agricultural mechanics including electricity, plumbing, welding processes, and wood and metal working applications. Emphasis will be given to the design and installation of electrical circuits. It will also include project planning and implementation including development of safety protocols for each area of study and introduction of GPS equipment and software for survey data collection.

INAG 251 Landscape Construction (3) Prerequisite: INAG250 or PLSC204. Restriction: Must be in a major in AGNR-College of Agriculture & Natural Resources. Additional information: Priority enrollment is given to Landscape Management majors in the Institute of Applied Agriculture. An introductory course in the basics of hardscape topics in landscape construction. Fundamental construction layout using surveying techniques, GPS, elements of construction dealing with wood, concrete, masonry, pavers, and/or electrical amenities used in hardscape construction. Emphasis will be placed on safety,

interpretation of construction drawings or plans, specifications for specific structures, materials selection, cost estimations, site preparation and typical construction techniques.

INST -- Information Studies

INST 126 Introduction to Programming for Information Science (3) Prerequisite: MATH115; or must have math eligibility of MATH130 or higher; or permission of instructor. Restriction: Must not have completed INST326 or CMSC131; and must be in Information Science program. Credit only granted for: CMSC106, CMSC122, OR INST126. An introduction to computer programming for students with very limited or no previous programming experience. Topics include fundamental programming concepts such as variables, data types, assignments, arrays, conditionals, loops, functions, and I/O operations.

INST 201 Introduction to Information Science (3) Credit only granted for: INST201 or INST301. Formerly: INST301. Examining the effects of new information technologies on how we conduct business, interact with friends, and go through our daily lives. Understanding how technical and social factors have influenced the evolution of information society. Evaluating the transformative power of information in education, policy, and entertainment, and the dark side of these changes.

INST 309 Independent Study in Information Science (1-3) Prerequisite: Must have completed INST301 Individual independent study of an aspect of information science, selected according to student interest and need in consultation with a member of the iSchool faculty. Repeatable to 6 credits if content differs.

INST 311 Information Organization (3) Prerequisite: Must have completed or be concurrently enrolled in INST301; or must have completed or be concurrently enrolled in INST201; or permission of instructor. Restriction: Registration priority for students in BSIS program. Examines the theories, concepts, and principles of information, information representation and organization, record structures, description, and classification. Topics to be covered in this course include the methods and strategies to develop systems for storage, organization, and retrieval of information in a variety of organizational and institutional settings, as well as policy, ethical, and social implications of these systems.

INST 314 Statistics for Information Science (3) Prerequisite: (INST301; or must have completed or be concurrently enrolled in INST201); and MATH115; and STAT100. Or permission of instructor. Restriction: Registration priority for students in BSIS program. Basic concepts in statistics including measure construction, data exploration, hypothesis development, hypothesis testing, pattern identification, and statistical analysis. The course also provides an overview of commonly used data manipulation and analytic tools. Through homework assignments, projects, and in-class activities, you will practice working with these techniques and tools to create information resources that can be used in individual and organizational decision-making and problem-solving.

INST 326 Object-Oriented Programming for Information Science (3) Prerequisite: (must have completed or be concurrently enrolled in INST201; or INST301); and (INST126; or CMSC106; or CMSC122). Or permission of instructor. Credit only granted for: INST326 or CMSC131. An introduction to programming, emphasizing understanding and implementation of applications using object-oriented techniques. Topics to be covered include program design and testing as well as implementation of programs.

INST 327 Database Design and Modeling (3) Prerequisite: CMSC106, CMSC122, or INST126; and (must have completed or be concurrently enrolled in INST201; or must have completed INST301). Or permission of instructor. Restriction: Registration priority for students in BSIS program. Credit only

granted for: INST327 or BMGT402. Introduction to databases, the relational model, entity-relationship diagrams, user-oriented database design and normalization, and Structured Query Language (SQL). Through labs, tests, and a project, students develop both theoretical and practical knowledge of relational database systems.

INST 335 Teams and Organizations (3) Prerequisite: PSYC100; and (INST201; or must have completed INST301). Or permission of instructor. Restriction: Registration priority for students in BSIS program. Team development and the principles, methods and types of leadership will be a focus with an emphasis on goal setting, motivation, problem solving, and conflict resolution. This course examines the principles of managing team projects in organizations through planning and execution including estimating costs, managing risks, scheduling, staff and resource allocation, communication, tracking, and control.

INST 346 Technologies Infrastructure and Architecture (3) Prerequisite: Must have completed INST301 OR Must have completed or be currently enrolled in INST201; and must have completed INST 326; and must have completed INST327 OR Must have completed INST307. Or permission of instructor. Restriction: Registration priority for students in BSIS program. Credit only granted for: INST346 or BMGT405. Examines the basic concepts of local and wide-area computer networking including an overview of services provided by networks, network topologies and hardware, packet switching, client/server architectures, network protocols, and network servers and applications. The principles and techniques of information organization and architecture for the Web environment will be covered along with such topics as management, security, authentication, and policy issues associated with distributed systems.

INST 352 Information User Needs and Assessment (3) Prerequisite: Must have completed or be concurrently enrolled in INST201; or must have completed INST301; or permission of instructor. Restriction: Registration priority for students in the BSIS program. Focuses on use of information by individuals, including the theories, concepts, and principles of information, information behavior and mental models. Methods for determining information behavior and user needs, including accessibility issues will be examined and strategies for using information technology to support individual users and their specific needs will be explored.

INST 354 Decision-Making for Information Science (3) Prerequisite: Must have completed INST314 OR Must have completed INST304; or permission of instructor. Restriction: Registration priority for students in BSIS program. Examines the use of information in organizational and individual decision-making, including the roles of information professionals and information systems in informed decision-making through techniques such as data analysis and regression, optimization, sensitivity analysis, decision trees, risk analysis and business simulation models.

INST 362 User-Centered Design (3) Prerequisite: PSYC100; and (must have completed or be concurrently enrolled in INST201; or must have completed INST301); and must have completed INST326. Or permission of instructor. Introduction to human-computer interaction (HCI), with a focus on how HCI connects psychology, information systems, computer science, and human factors. User-centered design and user interface implementation methods discussed include identifying user needs, understanding user behaviors, envisioning interfaces, and utilizing prototyping tools, with an emphasis on incorporating people in the design process from initial field observations to summative usability testing.

INST 377 Dynamic Web Applications (3) Prerequisite: Must have completed INST307 OR Must have completed INST327; or permission of instructor. Restriction: Registration priority for students in BSIS program. Credit only granted for: INST377 or BMGT406. An exploration of the basic methods and tools

for developing dynamic, database-driven websites, including acquiring, installing, and running web servers, database servers, and connectability applications.

INST 408 Special Topics in Information Science (3) Prerequisite: Must have completed INST201 OR INST301; or permission of instructor. Restriction: Registration priority for students in BSIS program. Repeatable to 6 credits if content differs. Selected topics in information science.

INST 447 Data Sources and Manipulation (3) Prerequisite: INST326 or CMSC131; and INST327. Or permission of instructor. Restriction: Must be in Information Science program; and permission of INFO-College of Information Studies. Examines approaches to locating, acquiring, manipulating, and disseminating data. Imperfection, biases, and other problems in data are examined, and methods for identifying and correcting such problems are introduced. The course covers other topics such as automated collection of large data sets, and extracting, transforming, and reformatting a variety of data and file types.

INST 462 Introduction to Data Visualization (3) Prerequisite: INST362; or permission of instructor. Restriction: Registration priority for students in the BSIS program. Exploration of the theories, methods, and techniques of visualization of information, including the effects of human perception, the aesthetics of information design, the mechanics of visual display, and the semiotics of iconography.

ISRL -- Israel Studies

ISRL 142 Introduction to Modern Israel (3) Credit only granted for: ISRL142, JWST142, JWST219B. An introduction to the history, politics, culture and society of modern Israel.

ISRL 249 Selected Topics in Israel Studies (3) Recommended: ISRL142. Repeatable to 6 credits if content differs. Topics in the study of Zionism and contemporary Israel from the 1880's to the present. Future offerings may address history, politics, or culture.

ISRL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ISRL 282 Introduction to Israeli Cinema (3) An overview of Israeli cinema, with attention to the distinctive themes, politics, and problems that distinguish Israeli film-making. Taught in English.

ISRL 289 New Explorations in Israel Studies (3) Investigation of critical and innovative responses in Israel Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

ISRL 299 Independent Study in Israel Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits. This lower-level independent study allows students to work closely with an Israel Studies faculty member of their choice, pending prior approval of the faculty member. In this independent study, students will focus on a topic specific to Israel Studies.

ISRL 329 Special Topics in Israel Studies (3) Repeatable to 9 credits if content differs. Topics in the study of Zionism and contemporary Israel from the 1880's to the present at an intermediate level. Individual sections may address history, politics, or culture.

ISRL 342 History of Modern Israel (3) Also offered as: HIST376. Credit only granted for: HIST376, ISRL342, or JWST342. Formerly: JWST342. History of modern Israel since the beginning of the Zionist settlement in 1882. Attention to different interpretations and narratives of Israel's history, including the historical and ideological roots of Zionism, the establishment of the State of Israel, ideological forces, wars, and the triumphs and crises of democracy.

ISRL 343 Global Migration and the Israeli Case Study (3) Credit only granted for: ISRL349K, GVPT368G, SOCY398G, SOCY398I, or ISRL343. Formerly: ISRL349K. Over 70% of Israel's population is made of first, second or third generation immigrants, who came from over 70 countries, making Israel an ultimate immigrant society. This course will focus on the history of Israel as a case study for the understanding of the historical phenomena of modern immigration.

ISRL 349 Investigating Topics in Israel Studies (3-6) Recommended: ISRL142 and ISRL249. Topics in the study of Zionism and contemporary Israel from the 1880's to the present at an intermediate level. Individual sections may address history, politics, or culture.

ISRL 369 Special Topics in Study Abroad (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ISRL 448 Seminar in Israel Studies (3) Recommended: ISRL349 and ISRL249. Restriction: Must be in the Israel Studies Minor. Intensive study of an Israel Studies topic. Expected work product is a substantial research or analysis paper or appropriate equivalent.

ISRL 449 Advanced Topics in Israel Studies (3) Recommended: ISRL349 or ISRL249. Repeatable to 6 credits if content differs. Topics in the study of Zionism and contemporary Israel from the 1880s to the present at the advanced level. Individual sections may address history, politics, or culture. Some Sections may have language or course prerequisites.

ISRL 499 Advanced Independent Study in Israel Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits. This upper-level independent study allows students to work closely with an Israel Studies faculty member of their choice, pending prior approval of the faculty member. In this independent study, students will focus on a topic specific to Israel Studies.

ITAL -- Italian

ITAL 103 Intensive Elementary Italian (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Not open to fluent/native speakers of Italian. Credit only granted for: ITAL103 or ITAL121. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

ITAL 121 Accelerated Italian I (3) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Credit only granted for: ITAL103 or ITAL121. An intensive beginning course in Italian language skills: guided practice in reading, writing, understanding and conversation, to enable the student to move more quickly to advanced courses. Restricted to students already having a good background in at least one other foreign language. When taken with ITAL122, may be used to satisfy language requirement.

ITAL 122 Accelerated Italian II (3) Prerequisite: ITAL121; or must have appropriate Foreign Language Placement Test (FLPT) score. Credit only granted for: ITAL203 or ITAL122. Continuation of ITAL121. Completion of accelerated cycle. May be used to satisfyARHU Global Engagement requirement.

ITAL 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 203 Intensive Intermediate Italian (4) Prerequisite: ITAL103; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed ITAL122; and must not be a fluent/native speaker of Italian. Credit only granted for: ITAL203 or ITAL122. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

ITAL 204 Review Grammar and Composition (3) Prerequisite: ITAL203 or ITAL122; or must have appropriate Foreign Language Placement Test (FLPT) score. An intensive review of major aspects of contemporary grammatical usage; training in comprehension; an introduction to guided composition.

ITAL 207 Reading and Writing in Italian (3) Prerequisite: ITAL204; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a fluent/native speaker of Italian. Culture-based, process approach to reading and writing in Italian; selected grammatical topics.

ITAL 211 Intermediate Conversation (3) Prerequisite: ITAL203; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Italian. Practice in spoken Italian based on reading and listening exercises in a variety of genres. Written assignments and exams.

ITAL 241 Italian Women Writers - in Translation (3) An analysis of the writings and the ideas of Italian women writers. Taught in English.

ITAL 251 Introduction to Italian Literature (3) Prerequisite: ITAL204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Italian. Reading of selected literary texts; discussion and brief essays in Italian.

ITAL 252 Stories of Italy (3) Prerequisite: ITAL207; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a fluent/native speaker of Italian. Additional information: . Introduction to fictions across time and space in Italy.

ITAL 261 Cuisine, Culture, and Society in Italy Yesterday and Today (3) Prerequisite: ITAL204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Exposes students to an important aspect of Italian culture: the art of gastronomy. Provides an in-depth understanding of the close relationship between food and culture, while enriching their knowledge of the Italian language through reading and analysis of various texts which deal with the preparation and adaptation of Italian food in different cultural settings. Taught in Italian.

ITAL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 301 Italian Composition (3) Prerequisite: ITAL207; or students who have taken courses with comparable content may contact the department. Techniques of composition; grammatical analysis; various genres; vocabulary.

ITAL 306 Commercial Italian I (3) Prerequisite: ITAL301; or permission of ARHU-School of Languages, Literatures, and Cultures department. An introduction to Italian Business language and culture. Special emphasis on communicative strategies used in business transactions and applications. Reading and discussion of relevant articles relating to business world from on-line newspapers and magazines.

ITAL 311 Advanced Oral Expression: Current Events (3) Prerequisite: ITAL211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Oral expression; development of idiomatic forms and vocabulary to level of the Italian press.

ITAL 351 Survey of Italian Literature I: From the Middle Ages to Renaissance (3) Prerequisite: ITAL207 or ITAL251; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: ITAL350 or ITAL351. Analysis of figures, themes, and styles in fiction and poetry from the Middle Ages to the Renaissance.

ITAL 352 Survey of Italian Literature II: From the Renaissance to the Present (3) Prerequisite: ITAL207 or ITAL251; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: ITAL350 or ITAL352. Analysis of figures, themes and styles in fiction and poetry from the Renaissance to the present.

ITAL 361 Survey of Italian Society and Culture: From Fascism to the Seventies (3) Prerequisite: ITAL207. Development of Italian society and culture from Fascism to the 1970s. Literature, cinema, economy, popular culture, and daily life. Taught in Italian.

ITAL 362 Survey of Italian Society and Culture: From the 1980s to thePresent Day (3) Prerequisite: ITAL207; or permission of ARHU-School of Languages, Literatures, and Cultures department. Development of Italian society and culture from the 1980s to the present. Literature, cinema, economy, popular culture, daily life. Taught in Italian.

ITAL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

ITAL 388 Language House Colloquium (1) Restriction: Must be a resident in Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

ITAL 399 Directed Study in Italian (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Intended for undergraduates who wish to work on an individual basis with a professor of their choice.

ITAL 401 Advanced Composition and Style (3) Prerequisite: ITAL301; or students who have taken courses with comparable content may contact the department. Advanced writing practice in range of genres.

ITAL 411 Monsters and Demons: the Faces of Evil in Dante's Inferno (3) An interdisciplinary study of Dante's Inferno as represented in the Divine Comedy. Special emphasis on Dante's own portrayal of monsters and demons and their roles in the poet's eschatological vision of Hell.Taught in English

ITAL 421 The Italian Renaissance (3) Credit only granted for: ITAL421 or ITAL422. A study of major trends of thought in Renaissance literature, art, and science. Taught in English.

ITAL 431 Italian Civilization in Translation (3) Credit only granted for: ITAL431 or ITAL432. Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. Taught in English.

ITAL 433 Holocaust in Italian Literature and Cinema (3) Also offered as: FILM433. Credit only granted for: ITAL433 or FILM433 or (JWST419R in Fall 2008). Formerly: JWST419R in Fall 2008. Review of literature and theoretical writings of Italy's most famous survivor, Primo Levi, to a sampling of Italian films that focus in vastly different and often extremely controversial ways on the experience of the concentration camp, while addressing a series of central questions from the brutal realities of the camps to the "compromises" made in order to survive, the need to bear witness, and the idea of the survivor's guilt.

ITAL 436 Italian Cinema I: Neorealism (3) Also offered as: FILM441. Credit only granted for: FILM441 or ITAL436. Explores representations of Italy in cinema with special focus on identity formation and the movement of Italian neorealism and post neorealism. Taught in English.

ITAL 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

ITAL 471 Italian Cinema: A Cultural Approach in Translation (3) Credit only granted for: ITAL471 or ITAL472. The culture of Italy through the medium of film from the silent days up to the present. Taught in English.

ITAL 473 Italian Cinema II - In Translation (3) Also offered as: FILM431. Credit only granted for: ITAL473, ITAL474, or FILM431. A study of Italian society and culture through the medium of film from the mid 1970's to the present. Taught in English.

ITAL 475 The Italian Opera Libretto in English (3) Prerequisite: Must have completed one course in literature. Credit only granted for: ITAL475 or ITAL476. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. Taught in English.

ITAL 478 Colloquium in Italian (1) Prerequisite: ITAL311; or students who have taken courses with comparable content may contact the department. Corequisite: ITAL498, ITAL411, ITAL431, ITAL421, ITAL473, ITAL475, ITAL471, or ITAL499. Repeatable to 6 credits. Colloquium section taught in Italian to accompany 400-level Italian courses taught in English. Discussion, presentations, readings.

ITAL 497 Senior Project (3) Prerequisite: 4 courses from ITAL400-499 course range; or permission of ARHU-School of Languages, Literatures, and Cultures department. Individual independent study of an aspect of Italian literature, culture or society selected according to student interest and need in consultation with a member of the Italian program.

ITAL 498 Special Topics in Italian Literature (3) Repeatable to 6 credits if content differs.

ITAL 499 Special Topics in Italian Studies (3) Repeatable to 6 credits if content differs.

IVSP -- Individual Studies Program

IVSP 317 Progress Report (1) Restriction: Must be in Individual Studies program. A written analysis of the program. Students register for IVSP 317 only once, the semester before the final term.

IVSP 318 Independent Learning Activities (1-6) Restriction: Must be in Individual Studies program; and permission of faculty sponsor. Repeatable to 9 credits if content differs. An independent study course which students can use for a variety of out-of-class internship and research opportunities.

IVSP 420 Senior Paper (3) Restriction: Must be in Individual Studies program. Synthesizing final paper or a final special project.

JAPN -- Japanese

JAPN 101 Elementary Japanese I (6) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana).

JAPN 102 Elementary Japanese II (6) Prerequisite: Minimum grade of C- in JAPN101; or appropriate Foreign Language Placement Test (FLPT) score. Continued introduction to the basic spoken patterns of contemporary Japanese.

JAPN 201 Intermediate Japanese I (6) Prerequisite: Minimum grade of C- in JAPN102; or or appropriate Foreign Language Placement Test (FLPT) score. Contemporary spoken and written Japanese.

JAPN 202 Intermediate Japanese II (6) Prerequisite: Minimum grade of C- in JAPN201; or appropriate Foreign Language Placement Test (FLPT) score. Contemporary spoken and written Japanese.

JAPN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JAPN 298 Special Topics Japanese Literature (3) Repeatable to 9 credits if content differs. Special topics in Japanese literature.

JAPN 301 Advanced Japanese I (6) Prerequisite: Minimum grade of C- in JAPN202; or permission of instructor. Advanced conversation, oral comprehension, and selected readings.

JAPN 302 Advanced Japanese II (6) Prerequisite: Minimum grade of C- in JAPN301; or permission of instructor. Continued readings in varied modern texts and advanced conversation and oral comprehension.

JAPN 307 Kanji and Composition (3) Prerequisite: Minimum grade of C- in JAPN301. Restriction: Must not be a fluent/native writer of Kanji; and permission of instructor. Study of Kanji in context; intensive writing practice.

JAPN 314 Edo Text and Context: Origins of Japanese Popular Culture (3) Intensive reading of various genres of literary and historical texts from the early modern (Edo/Tokugawa) period, read in English translation. Taught in English.

JAPN 315 Reading Japanese Empire (3) Reading a wide variety of cultural, intellectual, and official texts, this course explores how Japan's age of empire (1869-1945) was understood, imagined, and lived in various colonial contexts and in the metropolitan center. Students will gain a textured understanding of the complexities and contradictions of Japan's imperial project and the fraught ways this history plays out today in Japan and Asia. Taught in English.

JAPN 316 Women and Japanese Literature: Japanese Literature in Translation (3) Credit only granted for: JAPN316 or JAPN418W. Formerly: JAPN418W. Close critical reading of a range of Japanese literary texts that deal in some significant manner with gender, sex and sexuality. Taught in English.

JAPN 325 Modern Japanese Literature and Film (In Translation) (3) Explores and questions the significance of some of modern Japan's most dynamic historical transformations, pressing social issues, and modes of cultural expression. Covers the Meiji period (1868-1912) to the 21st century.

JAPN 369 Special Topics in Study Abroad (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JAPN 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

JAPN 388 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

JAPN 401 Readings in Modern Japanese Literature (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn primarily from modern literature.

JAPN 402 Readings in Japanese Cultural Studies (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Development of advanced reading, vocabulary, grammar, and translation skills through selected readings in Japanese drawn from the fields of history, social sciences, cultural studies, film studies, and popular culture.

JAPN 405 Readings in Advanced Modern Japanese (3) Prerequisite: JAPN402; or students who have taken courses with comparable content may contact the department; or permission of ARHU-School of Languages, Literatures, and Cultures department. Designed to further improve reading and translation skills; the course will include readings from newspaper articles, literary works, and academic publications in the social sciences and humanities. Listening exercises are included.

JAPN 407 The Art of Translation (3) Prerequisite: Minimum grade of C- in JAPN401; or students who have taken courses with comparable content may contact the department. Theory and practice of translation. Variety of genres. Japanese to English.

JAPN 408 Special Topics in Japanese (3) Prerequisite: Minimum grade of C- in JAPN302; or permission of instructor. Topic in the Study of Japanese, to be announced each time course is offered. Taught in Japanese.

JAPN 411 Introduction to Classical Japanese (3) Prerequisite: JAPN302; or students who have taken courses with comparable content may contact the department. Classical Japanese grammar and the varied styles of classical Japanese. Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods.

JAPN 412 Classical Japanese (3) Prerequisite: JAPN411. Continuation of JAPN 411 with more advanced classical Japanese.

JAPN 414 Masterpieces of Classical Japanese Literature in Translation (3) Major classics, with focus on philosophical, historical and cultural backgrounds. Taught in English.

JAPN 415 Modern Japanese Fiction in Translation (3) Major themes and literary developments in fiction from the late 19th century to the present. Emphasis on the works of Kawabata, Tanizaki, Mishima, and Abe.

JAPN 418 Japanese Literature in Translation (3) Repeatable to 9 credits if content differs. Representative works of Japanese literature in translation.

JAPN 421 History of the Japanese Language (3) Prerequisite: JAPN201; or permission of ARHU-School of Languages, Literatures, and Cultures department. Investigation of the origin of the Japanese language, its relationship with other languages, and its development. Taught in English, but presumes knowledge of Kanji (Chinese characters).

JAPN 422 Introductory Japanese Linguistics (3) An investigation of Japanese sound patterns and syntax through a comparison with English.

JAPN 424 Japan From the Margins (3) Credit only granted for: JAPN498B or JAPN424. Formerly: JAPN498B. Additional information: Taught in English. Japan from the Margins takes as its focus the history and representations of various others in Japanese society. They include ethnic Ainu, Okinawans, and Koreans, a historical outcaste group called the Burakumin, and people marginalized for their non-normative gender and sexual practices. Students learn about the historical specificities of each group as well as their common experiences of institutional discrimination as they grapple with larger questions regarding prejudice, nationalism, and social justice.

JAPN 425 The Atomic Bomb in Literature and Memory (3) Credit only granted for: JAPN498A or JAPN425. Formerly: JAPN498A. Additional information: Taught in English. Study of declassified documents and commentary on the United States decision to use the bomb in 1945, the many ways Japanese writers have attempted to express their indescribable experiences in Hiroshima and Nagasaki, and the shaping of historical narratives and national identities in post-war Japan and the U.S.

JAPN 428 Seminar in Japanese Discourse and Conversation Analysis (3) Prerequisite: JAPN302. Recommended: JAPN422. Repeatable to 6 credits if content differs. Presentation and discussion of classic and current readings in English and Japanese on theories and actual practice of discourse and conversation analysis. Students will learn transcription techniques and have an opportunity to apply them in a final term paper.

JAPN 438 Topics in Japanese Pragmatics (3) Prerequisite: JAPN201. Recommended: JAPN422. Repeatable to 9 credits if content differs. Also offered as: JAPN638. Basic concepts in the field of pragmatics (the study of language in context) such as deixis and indexicality, speech acts, ellipsis, and politeness. Readings in English on English and Japanese examples.

JAPN 498 Special Topics in Japanese Studies (3) Special topics in Japanese studies. Taught in English.

JAPN 499 Directed Study in Japanese (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs.

JOUR -- Journalism

JOUR 106 Introduction to Studio Production (1) Additional information: Course does not count toward a Journalism degree. Students will participate in various production roles to assist in the production of UMTV shows.

JOUR 130 Self-Presentation in the Age of YouTube (3) Credit only granted for: COMM107, COMM200, ENES143, INAG110, JOUR130 or THET285. Additional information: May not count toward the Journalism major. Students, as they make use of evolving technologies, need to be able to present themselves effectively in front of any number of different audiences through any number of different outlets. Whether in an interview on radio, a guest presentation at a conference, in comments on a video blog, in commentary on TV, in the lead on a self-produced YouTube video, or as spokesperson in front of investors or management, professionals need strong oral communication skills. This class focuses on strengthening those skills through active individual and group presentations, as well as, through discussion of key techniques and group critique of presentation publicly available in the social media space on sites such as YouTube.

JOUR 150 Introduction to Mass Communication (3) Restriction: Not open to students who have completed JOUR100 prior to Fall 1999. Additional information: Not applicable toward journalism major. Survey of the functions and effects of the mass media in the United States. A consumer's introduction to newspapers, television, radio, film, sound recording, books, magazines, and new media technology.

JOUR 175 Media Literacy (3) Additional information: Not applicable toward journalism major. An analysis of the information, values and underlying messages conveyed via television, newspapers, the internet, magazines, radio and film. Examines the accuracy of those messages and explores how media shape views of politics, culture and society.

JOUR 181 Grammar for Journalists (1) Credit only granted for: ENGL181, ENGL281, or JOUR181. The basic grammatical structures of standard American written English and its conventions of punctuation, diction and usage in journalistic writing.

JOUR 199 Survey Apprenticeship (1) Prerequisite: Permission of JOUR-Philip Merrill College of Journalism. Repeatable to 6 credits if content differs. Formerly: JOUR198. College-monitored experience in approved mass-communications organizations and industries.

JOUR 200 Journalism History, Roles and Structures (3) Introduction to the study of journalism from the standpoint of media history and sociology.

JOUR 201 News Writing and Reporting I (3) Prerequisite: Minimum grade of C- in ENGL101, JOUR181, and JOUR200; and permission of JOUR-Philip Merrill College of Journalism. Restriction: For students intending to be journalism majors; and permission of JOUR-Philip Merrill College of Journalism. Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills. Students who earned 80% or higher on the JOUR181 diagnostic are exempt from the JOUR181 prerequisite.

JOUR 202 News Editing (3) Prerequisite: Must have completed or be concurrently enrolled in JOUR203. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Copy editing, graphic principles and processes, new media technology.

JOUR 203 Introduction to Multimedia Skills (3) Prerequisite: JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Credit only granted for: JOUR203 or JOUR328G. Formerly: JOUR328G. Examining the basics of producing and editing digital photos, video, and audio. Topics include: framing, lighting, and other aspects of composition; sequencing, using wide, medium, and tight shots; and ethical considerations when collecting sound and visuals.

JOUR 240 Advertising in America (3) Credit only granted for: JOUR240 or JOUR340. Formerly: JOUR340. Additional information: Not applicable toward journalism major. Survey of the history, regulation and organization of advertising; advertising strategies and effects.

JOUR 262 News Videography (3) Prerequisite: JOUR203. Also offered as: JOUR603. Credit only granted for: JOUR262 or JOUR603. Introduction to shooting, editing and production of video stories for broadcast and the Web; includes newsgathering in the field.

JOUR 300 Journalism Ethics (3) Prerequisite: JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Examination of ethical problems in news writing and reporting.

JOUR 320 News Writing and Reporting II: Multiplatform (3) Prerequisite: Minimum grade of C- in JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Principles and practices of news reporting; covering news beats and other news sources, including researching news stories for accuracy, comprehensiveness and interpretation. Due to rigorous publication requirement, plan your schedule accordingly.

JOUR 323 Advanced News Editing (3) Prerequisite: Minimum grade of C- in JOUR202. Principles and practices of editing beyond the copy desk. Wire editing, copy control, newsroom management problems. Seeing the complete newspaper.

JOUR 324 Commentary and Editorial Writing (3) Prerequisite: JOUR320 or JOUR360. Formerly: JOUR326. Journalistic interpretation and analysis; commentary and editorial writing.

JOUR 325 Capital News Service Bureau (6) Prerequisite: JOUR320; and permission of JOUR-Philip Merrill College of Journalism. Advanced journalism training. Students report as part of College's Capital News Service program.

JOUR 327 Urban Affairs Reporting (3) Prerequisite: JOUR320; and permission of instructor. Also offered as: JOUR627. Credit only granted for: JOUR327 or JOUR627. Students are immersed in coverage of issues affecting cities, working on a semester-long multi-platform reporting project based in Baltimore.

JOUR 328 Special Topics in News Writing and Reporting (1-3) Repeatable to 6 credits if content differs. Advanced training and practice in writing and reporting news.

JOUR 337 Patch U:Hyper-Local News Production (3) Prerequisite: JOUR320 or JOUR360; and JOUR352; and permission of instructor. Also offered as: JOUR665. Credit only granted for: JOUR 389P, JOUR 337 or JOUR665. Formerly: JOUR 389P. The Patch U class is a course on hyperlocal reporting. Student are assigned to specific Patch sites and work with the local editors to cover government, education and community news and write short features.

JOUR 350 Multimedia Presentation (3) Prerequisite: Minimum grade of C- in JOUR202; or minimum grade of C- in JOUR262. Credit only granted for: JOUR350 or JOUR373. An examination of the relationship of verbal and visual components of news content and the presentation of information in print and online publications by combining typography, graphics, images and interactivity using current digital technologies.

JOUR 352 Interactive Design and Development (3) Prerequisite: JOUR203. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Also offered as: JOUR352. Credit only granted for: JOUR352 or JOUR652. Conceptualize, wireframe, design and build responsive Web pages using HTML, style sheets and other coding tools; work with open source interactive tools, JavaScript libraries, multimedia and text to create charts, timelines, maps and other forms of nonfiction storytelling.

JOUR 353 News Bureau: Multimedia Reporting (3) Prerequisite: JOUR352; and permission of JOUR-Philip Merrill College of Journalism; and (JOUR320 or JOUR360). Advanced reporting and writing in an online environment focusing on multimedia and non-traditional storytelling.

JOUR 354 Interactive Multimedia Storytelling (3) Prerequisite: JOUR352. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Advanced development of multimedia journalism, with emphasis on interactivity and application of new technologies, drawing on multiple sources, technologies and techniques to create interactive narratives.

JOUR 355 News Bureau: Multimedia Editing and Production (3) Prerequisite: JOUR202 or JOUR262; and (JOUR320 or JOUR360); and JOUR352; and permission of JOUR-Philip Merrill College of Journalism. Advanced online journalism training. Students work as multimedia editors and producers, building interactive content and special reports.

JOUR 356 Kaiser Health Multimedia Reporting (3) Prerequisite: JOUR203; and (JOUR320 or JOUR360); and permission of instructor. Opportunities are provided for advanced reporting and writing on health topics, using traditional and multimedia storytelling tools.

JOUR 358 Special Topics in Visual Communication (3) Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits if content differs. Advanced training and practice in visual communication.

JOUR 360 News Writing and Reporting II: Broadcast (3) Prerequisite: Minimum grade of C- in JOUR201. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Writing and reporting for broadcast media: production of news stories.

JOUR 361 Television Reporting and Production (3) Prerequisite: JOUR262 and JOUR360. Writing and editing for the broadcast media. Interpretive and documentary news stories.

JOUR 362 Broadcast News Producing (3) Prerequisite: JOUR262 and JOUR360; and must have completed or be concurrently enrolled in JOUR361. Producing TV news.

JOUR 363 Long Form Broadcast Journalism (3) Prerequisite: JOUR361; and permission of JOUR-Philip Merrill College of Journalism. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Also offered as: JOUR663. Credit only granted for: JOUR363, JOUR486 or JOUR663. Formerly: JOUR486. Production of long form broadcast news reporting, reality videos or documentaries.

JOUR 364 Radio Broadcasting (3) Prerequisite: JOUR360; and permission of JOUR-Philip Merrill College of Journalism. Credit only granted for: JOUR364 or JOUR368R. Formerly: JOUR368R. Students receive hands-on training in applying what they have learned about news reporting to the preparation of stories for, and the production of, a weekly radio program.

JOUR 367 Broadcast News Bureau (6) Prerequisite: JOUR361; and permission of JOUR-Philip Merrill College of Journalism. Advanced broadcast journalism training. Students report as part of the College's Capital News Service program.

JOUR 368 Topics in Broadcast and Electronic Media (1-3) Repeatable to 6 credits if content differs. Advanced research, analysis and/or practice of selected topics in broadcast journalism.

JOUR 370 Photojournalism (3) Prerequisite: JOUR320 or JOUR360. Credit only granted for: JOUR 368P, JOUR 370 or JOUR 670. Formerly: JOUR 368P. Additional information: Students are required to borrow, rent or purchase a 35mm digital camera. Contact department for camera specifications. Examining the basics of shooting, editing and storytelling with still photos taken with 35mm digital cameras. Students shoot portraits, feature photos and action shots. Final project is a photo story/essay.

JOUR 371 Feature Writing (3) Prerequisite: JOUR320. Research and writing feature articles.

JOUR 380 Science Writing for News Media (3) Prerequisite: JOUR320; or permission of JOUR-Philip Merrill College of Journalism. Writing of scientific and technical material for the general audience.

JOUR 381 Media Industry Reporting (3) Prerequisite: JOUR320; and permission of instructor. Also offered as: JOUR681. Credit only granted for: JOUR381 or JOUR681. Students hone their reporting and writing skills as they produce work for an award-winning professional magazine, and immerse themselves in the news industry, which is undergoing dramatic transformation in the digital age.

JOUR 382 Sports Writing and Reporting (3) Prerequisite: JOUR320; and permission of JOUR-Philip Merrill College of Journalism. Credit only granted for: JOUR328B or JOUR382. Formerly: JOUR328B. Gives students full and wide-ranging instruction in all aspects of sports reporting and writing, including how to report, write, edit and lay out sports stories, incorporating photography and multimedia. We will also discuss ethics, objectivity, fairness and the future of sports journalism.

JOUR 385 Visual Storytelling (3) Prerequisite: Permission of instructor. Also offered as: JOUR685. Credit only granted for: JOUR385 or JOUR685. Introduction to the theory and stylized forms of storytelling across various mediums and to understand how these forms have been adapted to visual storytelling. Students practice and refine their own visual storytelling and reporting skills.

JOUR 389 News Coverage of Special Topics (1-3) Repeatable to 6 credits. Advanced training and practice in writing and reporting news in one specialized field of interest.

JOUR 396 Supervised Internship (2) Prerequisite: Must have earned a grade of C- or better in JOUR320 or JOUR360. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Credit only granted for: JOUR326, JOUR366, or JOUR396. Students will complete a minimum of 90 hours in a supervised journalism internship over a minimum of 10 weeks in spring and fall, and eight weeks in summer. Emphasis is on relating academic training to professional experience. Students may pick up an internship proposal form in KNI 1100, have their internship supervisor fill it out, and meet with the college's internship director to receive permission to register. No requests to register after the Schedule Adjustment Period will be granted. This requirement would affect incoming freshmen from the fall 2012 class.

JOUR 398 Independent Study (1-3) Repeatable to 3 credits. Individual projects in journalism.

JOUR 399 Supervised Internship (1) Prerequisite: Minimum grade of C- in JOUR320 and JOUR360. Repeatable to 3 credits if content differs. Credit only granted for: JOUR326, JOUR366, JOUR396, or JOUR399. Supervised news internship experience; relation of academic training to professional experience.

JOUR 400 Media Law (3) Prerequisite: JOUR320, JOUR360, or JOUR501. Restriction: Junior standing or higher. Legal rights and constraints of mass media; libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication. Previous study of the law not required.

JOUR 405 Breaking News With Numbers: Statistics for Journalists (3) Prerequisite: Minimum grade of C- in JOUR201; and (MATH107 or MATH110; or must have completed a higher level math course). Or have permission of the instructor. Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Common statistical tools, software and data visualization techniques will be used to allow students to analyze data and solve problems relevant to reporting and writing about politics, sports, criminal justice, business and other fields.

JOUR 412 Biography As Journalism (3) Restriction: Junior standing or higher. Credit only granted for: JOUR412 or AMST498Z. Focuses on journalistic life histories, examining biography as a distinct genre. Students will refine research and writing skills as they trace the evolution of the life histories into today's narrative biographies.

JOUR 434 Salzburg Seminar: Global Media Literacy (3) Restriction: Must be in Salzburg Academy program. Also offered as: JOUR734. Credit only granted for: JOUR434 or JOUR734. An advanced analysis of the information, values underlying messages conveyed via television, newspapers, the Internet, magazines, radio and film from a cross-cultural perspective. Examines the accuracy of messages and explores how distinctive global media shape views of politics culture and society with nations, across regions and internationally.

JOUR 435 Salzburg Seminar: Global Change, Global Cooperation (3) Restriction: Must be in Salzburg Academy program. Also offered as: JOUR735. Credit only granted for: JOUR435 or JOUR735. Practical and theoretical examination of a global problem (or problems) of contemporary importance from a cross-cultural, perspective. Analytical framework used to examine how media shape global problems, events and/or issues regionally.

JOUR 443 Sports, Society, Culture and the Media (3) Restriction: Junior standing or higher. Credit only granted for: JOUR459G or JOUR443. Formerly: JOUR459G. Designed to explore how sports, society, culture and the media critically relate to each other and the vast audiences of fans and interested parties. Students will study how journalists impact change; how sports shape culture; and how sports are seen throughout the world. College sports, children and sports, the business of sports, the history of sports media and the future of sports in society will be studied as well.

JOUR 451 Advertising and Society (3) Restriction: Junior standing or higher. Advertising as an institution with manifest economic purposes and latent social effects. Influences of advertising on people, and related issues of ethics and social responsibility.

JOUR 452 Women in the Media (3) Restriction: Junior standing or higher. Also offered as: WMST452. Credit only granted for: JOUR452 or WMST452. Participation and portrayal of women in the mass media from colonial to contemporary times.

JOUR 453 News Coverage of Racial Issues (3) Restriction: Junior standing or higher. Analysis of news media coverage of issues relating to racial minorities in the United States, with special attention to Hispanics, Asian Americans, African Americans and Native Americans.

JOUR 455 Media Entrepreneurship (3) Credit only granted for: JOUR459E or JOUR455. Formerly: JOUR459E. Basic business and entrepreneurship concepts will be covered and will explore how technology is transforming the business of media. Students develop and pitch ideas for media businesses, learn startup basics, do exercises in Internet advertising and business plan analysis, use social networks and other digital communication tools, and perform other hands-on exercises in business development and presentation.

JOUR 456 Literature in Journalism (3) Also offered as: JOUR673. Credit only granted for: JOUR456 or JOUR673. From Truman Capote's In Cold Blood to Mark Bowden's Black Hawk Down, students will examine how literary works can help writers approach a subject in a different way than more traditional forms of journalism, including the advantages and limitations of the style.

JOUR 458 Special Topics in Journalism (3) Repeatable to 6 credits if content differs. Issues of special concerns and current interest.

JOUR 459 Special Topics in Journalism (1-3) Repeatable to 6 credits if content differs. Issues of special concern and current interest. Open to all students.

JOUR 462 Professional Seminar in Public Affairs Reporting (3) Prerequisite: Permission of JOUR-Philip Merrill College of Journalism. Explore theoretical and practical issues in the press coverage of governments. Examine the complex press-government relationship.

JOUR 470 Journalism and Public Communication Research (3) Prerequisite: Must have completed a university statistics course. Credit only granted for: JOUR470 or JOUR477. Formerly: JOUR477. Journalism and public communication research methods used in measuring public opinion and media programs and materials.

JOUR 471 Public Opinion Research (3) Prerequisite: Must have completed a university statistics course. Measurement of public opinion and media habits; role of the media in the formation of public opinion.

JOUR 472 Computer-Assisted Reporting (3) Prerequisite: JOUR320 or JOUR360. Computer and online data acquisition; analytical methods for writing and reporting news.

JOUR 476 Researching Emerging Media in Journalism: Past, Present and Future (3) Prerequisite: Must have completed a university statistics course. Credit only granted for: JOUR479W or JOUR476. Formerly: JOUR479W. Students will examine developments billed as innovative in the current technology-laden news ecology -- such as social media, mobile reporting and virtual reality -- and the blurring of lines between hard news, informed opinion and advocacy. While questions about the future cannot be answered with any certainty, an exploration of the past allows us to see what happened when new technologies, information systems and practices appeared as possible tools for use by journalists and the communities they served. Students will learn to use resources for researching emerging media, including UMD library databases and open access sources. The course will include presentations by the instructor, discussions, field trips, in-class exercises and student presentations. Each student will engage in a research project to understand the experience of emerging media in a decade between 1820 and 1980. Students will also write an essay contemplating current trends and the future of emerging media.

JOUR 479 Special Topics in Data Gathering and Analysis (1-3) Repeatable to 3 credits. Special research topics for reporting and writing.

JOUR 480 Capstone Colloquium: The Business of News (1) Restriction: Must be in a major in JOUR-Philip Merrill College of Journalism; and junior standing or higher; and permission of JOUR-Philip Merrill College of Journalism. Students will learn the basic news business concepts and examine how revenue and cost structures for media businesses are evolving in new directions. Topics include basic principles and concepts that drive media businesses in the Internet age, including revenue sources, dynamics of online advertising and subscriptions, mobile media strategies, user metrics, engaging audiences, and market dynamics.

JWST -- Jewish Studies

JWST 141 American Jewish Experience (3) Also offered as: HIST106. Credit only granted for: HIST106 or JWST141. History of the Jews in America from Colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic, and political life.

JWST 219 Special Topics in Jewish Studies (3) Repeatable to 9 credits if content differs.

JWST 225 Religions of the Ancient Near East (3) Credit only granted for: JWST225, RELS219A, or HIST219I. Introduction to ancient Near Eastern religious systems and mythology, from the third millennium BCE through the fourth century BCE. Particular emphasis on Mesopotamia and ancient Israel.

JWST 230 Rabbinic Movement: History and Culture (3) Also offered as: HIST281. Credit only granted for: HIST281 or JWST230. Introduction to the Rabbinic movement and its history, first to seventh century CE. Survey of the essential texts of ancient Rabbinic literature, both halakhic (legal) and aggadic (non-legal).

JWST 231 Jewish Texts and Cultures of the Second Temple Period (3) Credit only granted for: HIST219C (Fall 2005), JWST219C (Fall 2005), or JWST231. An introduction to the literature, history, and culture of Jews in the period between the sixth century BCE and the second century CE. Special

topics may include the rise of the formation of the biblical canon, scriptural interpretation, sectarian and revolutionary movements, and growth of the diaspora.

JWST 233 Why the Jews? Historical and Cultural Investigations (3) Restriction: Must not have completed HIST282, HIST283, JWST234, or JWST235. Also offered as: HIST287. Credit only granted for: JWST233 or HIST287. Examines the history and culture of the Jews from the thirteenth century BCE/BC to the present through an examination of significant themes or problems (such as "religion" or "diaspora") that shape our understanding of the Jewish people. A primary focus in the course will be on texts, artifacts, and other cultural products by Jews and others that illustrate the history of the Jews help understand their cultural heritage.

JWST 234 History of the Jewish People I (3) Also offered as: HIST282. Credit only granted for: HIST282 or JWST234. Political, economic, social, and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

JWST 235 History of the Jewish People II (3) Credit only granted for: HIST283, HIST283H, JWST235, or JWST235H. Political, economic, social and cultural development within Jewish history from the end of the Middle Ages to the present. Special attention to the twentieth century developments including the Nazi Holocaust and its aftermath, the Zionist movement and the creation of the State of Israel, and the rise of the contemporary American-Jewish community.

JWST 250 Fundamental Concepts of Judaism (3) Also offered as: PHIL234, RELS250. Credit only granted for: JWST250, PHIL234, or RELS250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

JWST 260 Introduction to Classical Hebrew I (3) Prerequisite: HEBR111; or students who have taken courses with comparable content may contact the department. Formerly: HEBR401. Readings of the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

JWST 261 Introduction to Classical Hebrew II (3) Prerequisite: JWST260; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Formerly: HEBR402. Continuation of JWST260. Readings in the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

JWST 262 Introduction to the Hebrew Bible/Old Testament (3) Also offered as: ENGL262. Credit only granted for: JWST262, HEBR223 or ENGL262. Formerly: HEBR223. Origins of the Hebrew Bible (Old Testament), with attention to literary formations, archaeology, and social-political settings. Explorations of major questions, including who wrote the Bible, and when; relationships of the biblical tradition to the mythology and religious structures of ancient Israel's near eastern neighbors; and dynamics of politics, religious leadership, and law.

JWST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JWST 272 Introduction to Jewish Literature (3) Also offered as: CMLT242. Credit only granted for: CMLT242 or JWST272. A survey of Jewish literature and introduction to methods of reading literature in

general and Jewish literature in particular. Concern with what makes a literary corpus Jewish and other issues of canonicity. All texts in English translation.

JWST 281 Yiddish I (3) Introduction to the Yiddish language, with emphasis on speaking, reading, and writing skills. Students will also learn the history of the language, its significance to Jewish culture, its origins and basic structure.

JWST 282 Elementary Yiddish II (3) Prerequisite: JWST281; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Continuation of JWST281.

JWST 283 Intensive Elementary Yiddish I (4) Restriction: Must not have completed JWST282. Credit only granted for: GERM149Y, JWST282, or JWST283. An intensive introduction to the Yiddish language. Course covers one year of language instruction in one semester.

JWST 289 New Explorations in Jewish Studies (3) Investigation of critical and innovative responses in Jewish Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

JWST 298 Elementary/Introductory Language Module for Jewish Studies (1-3) Prerequisite: HEBR212 or JWST282; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 9 credits if content differs. A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.

JWST 299 Independent Study in Jewish Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits if content differs. This lower-level independent study allows students in to work closely with a Jewish Studies faculty member of their choice, pending the prior approval of the faculty member. In this independent study, students will focus on a topic specific to Jewish Studies.

JWST 304 Critical Approaches to Israeli Culture (3) Formerly: JWST419B and JWST419K. An examination of the intersections of literature, society, philosophy, and politics in the making of modern Israeli culture. Special attention will be paid to the Zionist emphasis on making "new" Jews and its implications when expressed in literature and society.

JWST 314 Pedagogy and Instruction in the Hebrew Classroom (3) Credit only granted for: JWST314, JWST419F, or JWST429C. Formerly: JWST419F and JWST429C. An exploration of applied linguistic theory and issues in Hebrew teaching to current and future Hebrew and Judaic studies teachers. First and second language acquisition theories, past and present language teaching methodologies, effective approaches to teaching and testing in the four skill areas (listening, speaking, reading, and writing), as well as knowledge of the role of identity, context, and affective factors in Hebrew language learning. Taught in English.

JWST 315 Culture and Identity in Jewish and Hebrew Education (3) Credit only granted for: JWST429P or JWST315. Formerly: JWST429P. An in-depth examination of heterogeneous natures of various language learning settings. Social and psychological theories of second language and identity acquisition, anomie and language/identity attrition, and conflicts of class, religion, ethnicity, and power relations that affect Jewish and Hebrew education. Taught in English.

JWST 319 Special Topics in Jewish Studies (1-6) Repeatable to 12 credits if content differs. Topics in Jewish Studies.

JWST 324 Biblical History and Culture (3) Also offered as: HIST321. Credit only granted for: HEBR333, HIST321, or JWST324. Formerly: HEBR333. Study of the political, social, and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

JWST 325 Jews and Judaism in Antiquity I: Sixth Century BCE through the First Century CE (3) Also offered as: HIST370. Credit only granted for: HIST370 or JWST325. Political, social, and religious history of the Jews from the Persian Period to the Judean Revolt of 66-70CE. Special attention to the rise of sectarian and revolutionary movements.

JWST 326 Jews and Judaism in Antiquity II: First through Seventh Centuries (3) Also offered as: HIST371. Credit only granted for: HIST371 or JWST326. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformations in Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

JWST 333 Jews in Early Modern Times 1450-1750 (3) Recommended: HIST282; or JWST234. Also offered as: HIST373. Credit only granted for: JWST333 or HIST373. Formerly: JWST419C. Emergence of new powerful population centers, religious and cultural creativity, new forms of community, and radical messianic movements.

JWST 341 American Jewish Literature (3) Also offered as: ENGL331. Credit only granted for: ENGL379L (Spring 2013), HONR229G (Spring 2008), JWST319T(Spring 2013), ENGL331, or JWST341. Formerly: ENGL379L and JWST319T. An exploration of the role played by literature in the development of American Jewish ethnic identity. Primary materials include essays, poetry, plays, short stories, novels, films and music.

JWST 344 Modern Jewish History II: World Jewry Since 1870 (3) Also offered as: HIST375. Credit only granted for: HIST375 or JWST344. Continuation of JWST343: Social, political, economic, and cultural change in the Jewish world since 1870. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 19th Century to the present.

JWST 345 The Holocaust of European Jewry (3) Also offered as: HIST307. Credit only granted for: HIST307 or JWST345. Roots of Nazi Jewish policy in the 1930s and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

JWST 346 Representing the Holocaust (3) Also offered as: ENGL332. Credit only granted for: ENGL379J, JWST419I, ENGL332, or JWST346. Formerly: ENGL379J and JWST419I. Different perspectives on how the Holocaust should be represented. Examination of a wide range of texts including fiction, memoirs, critical essays, poems and films in different languages (in translation). Emphasis on the international and comparative nature of Holocaust literary studies and investigation into the propriety of literary representation of historical catastrophe. Consideration of our own role as readers serving as witnesses to an event that has marked itself indelibly in the aesthetic history of the twentieth century.

JWST 347 Tradition and Change: Jewish Religion in the Modern World (3) Credit only granted for: JWST419E, JWST347, HIST429X, JWST419R, or RELS419R. Formerly: JWST419E, JWST419R. An exploration of the history of the different modern Jewish religious movements that developed in Europe, starting with messianic movements and ending with Reform and Orthodoxy. Emphasis will be placed on

the influence of the academic study of Judaism on the development of modern Jewish religious ideologies and practices.

JWST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

JWST 370 Before the Holocaust: The Golden Age of Eastern European Jewry (3) Credit only granted for: JWST419E, JWST370, or HIST419Q. Formerly: JWST419E. An exploration of the history of the Jews of Eastern Europe from the period of the Polish Lithuanian Commonwealth until the Holocaust. Topics to be covered include religious, political, social, and cultural transformation of Jewish life in Eastern Europe in the context of the general political changes in the area.

JWST 381 Introduction to Hebrew Cultural Studies (3) Prerequisite: HEBR314; or permission of instructor. Restriction: Must not have completed HEBR381. Also offered as: HEBR381. Credit only granted for: HEBR381 or JWST381. Critical study of Israeli culture with special emphasis or literature film, and art as sites of struggle over political and social meaning during times of cultural transformation in Israel. Topics will focus on the historical development of Israeli identity and gender, in particular within the military and Zionist youth movements. Taught in Hebrew.

JWST 386 Experiential Learning in Jewish Studies (3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Junior standing or higher. The Jewish Studies Program's internship program. Pre-professional experience in research, analysis, and writing related to Jewish Studies in a variety of work settings.

JWST 408 Honors Seminar in Jewish Studies (3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Junior standing or higher. An in-depth exploration of a theme in Jewish history, literature, culture or thought. Course subject and readings will vary from year to year, but will generally cut across periods, locations, or disciplines. Students are expected to engage the course material critically and to use the seminar as an opportunity to develop an independent research agenda.

JWST 409 Research Seminar in Jewish Studies (3-4) Prerequisite: Must have completed two upper-level courses in an appropriate area of Jewish Studies; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 9 credits if content differs. Formerly: JWST309. A capstone course for Jewish Studies. Guides students through advanced source material and subject matter, research skills, and presentation techniques. A substantive paper based on independent research and analysis is one expected outcome.

JWST 419 Special Topics in Jewish Studies (3) Repeatable to 9 credits if content differs.

JWST 429 Advanced Topics in Jewish Studies (3-4) Repeatable to 12 credits if content differs. Special topics at an advanced level for Jewish Studies. Primarily intended for majors and graduate students.

JWST 430 Dead Sea Scrolls (3) Prerequisite: Must have completed one JWST course or one RELS course; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Also offered as: RELS430. Credit only granted for: JWST429Q, JWST430, RELS419Q,or RELS430. Formerly: JWST429Q. A study of the Dead Sea Scrolls in their ancient and modern settings, and in terms of contemporary scholarly interpretations of their meaning. Interpretations of the historical significance of these documents, their connections to ancient Jewish sectarian movements, and their implications for our understanding of Judaism, Christianity, and the history of the Bible.

JWST 432 Jews in Medieval Times 1000-1450 (3) Recommended: HIST282, JWST234, HIST330, or HIST331. Also offered as: HIST476. Credit only granted for: HIST419R, HIST476, or JWST432. Formerly: JWST429M. Social and cultural life of Jewish communities spread throughout Islam and Christendom. Major topics include the Gaonate; kehila organization; legal, rationalist, and mystical thought; and the context of rising animosity linked to the Crusades and changing Church doctrines.

JWST 451 Issues in Jewish Ethics and Law (3) Prerequisite: Must have completed 3 credits in philosophy or Jewish studies (excluding Hebrew language); or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Credit only granted for: JWST451, or PHIL433. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

JWST 452 The Golden Age of Jewish Philosophy (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Must not have completed PHIL417. Also offered as: PHIL417. Credit only granted for: JWST452 or PHIL417. Jewish philosophy from Maimonides in the 12th Century to the expulsion of the Jews from Spain at the end of the 15th Century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

JWST 453 Philosophy of Spinoza (3) Prerequisite: 6 credits in PHIL courses; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Restriction: Must not have completed PHIL424. Also offered as: PHIL424. Credit only granted for: JWST453 or PHIL424. An investigation of the metaphysical, ethical, and political thought of the 17th century philosopher Benedict Spinoza.

JWST 459 Readings in Medieval Hebrew (3-4) Repeatable to 9 credits if content differs. Credit only granted for: JWST459 or JWST466. Formerly: JWST466. Readings and analysis of Hebrew texts and literature from the Middle Ages. Language of instruction in English; all texts in Hebrew.

JWST 468 Readings in the Hebrew Bible (3-4) Prerequisite: HEBR313; or permission of instructor. Repeatable to 9 credits if content differs. Formerly: HEBR441 and HEBR442. Readings in the Hebrew text of the Bible. Emphasis in close reading, grammar analysis, and modern interpretations of the Bible. Language of instruction English; all texts in Hebrew.

JWST 469 Readings in Rabbinic Hebrew (3-4) Prerequisite: HEBR313; or permission of instructor. Repeatable to 9 credits if content differs. Readings in classical rabbinic texts and related corpora. Emphasis on grammar and reading skills as well as critical analysis of the material. Language of instruction: English; all texts in original language.

JWST 471 Modern Hebrew Literature in Translation (3) An exploration of modern Hebrew prose, poetry, and literary essays written from the 1880s through the present in Europe, Palestine, and Israel. An investigation of the challenges confronting authors such as Mendele Mokher Sforim, Avraham Mapu, Chaim Nahman Bialik, Dvorah Baron, S.Y. Agnon, and David Fogel as they tried to create a contemporary secular literature out of an ancient sacred language. All texts in English translation.

JWST 478 Readings in Modern Hebrew (3) Prerequisite: HEBR313; or permission of instructor. Restriction: Junior standing or higher. Repeatable to 12 credits if content differs. Variable topics in Modern Hebrew Literature.

JWST 491 Judaism and the Construction of Gender (3) Prerequisite: 1 course in JWST; or 1 course in LGBT; or 1 course in WMST. Also offered as: WMST491. Credit only granted for: JWST419X, JWST491, or WMST491. Formerly: JWST419X. The study of Jewish culture, religious practice,

communal authority, and literature through the frame of such critical categories of analysis as gender, sexuality, masculinity, power, ethics, and the feminine.

JWST 492 Sex, Gender, and Jewish Identity (3) Prerequisite: 1 course in WMST; or 1 course in JWST; or 1 course in LGBT; or permission of instructor. Credit only granted for: JWST492, JWST409G, JWST419W, LGBT448W, or WMST498W. Formerly: JWST409G and JWST419W. An exploration of Jewish embodiment, including dynamics related to biological sex, culturally-framed gender, and sexuality. Topics of discussion may include transgender and intersex Jews, stereotypes and gender performance, modesty, genetics, and body alteration. Focus is on contemporary Jewish culture, framed within the larger historical and textual tradition.

JWST 498 Advanced Language Module for Jewish Studies (1-3) Prerequisite: HEBR212 or JWST282; or permission of ARHU-Meyerhoff Program & Center for Jewish Studies. A supplementary language module for students enrolled in designated Jewish Studies classes. Language of instruction English, texts in original language.

JWST 499 Independent Study in Jewish Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits if content differs.

KNES -- Kinesiology

KNES 200 Introduction to Kinesiology (3) Restriction: Must be in Kinesiology program; and freshman standing. Or must not be in Kinesiology program; and must have less than 60 credits. Credit only granted for: KNES200 or KNES289M. An overview of kinesiology, the interdisciplinary study of physical activity. Examines human motor behavior and its cultural forms such as sport from the physiological, psychological, sociological, historical, philosophical, and biomechanical perspectives.

KNES 201 Kinesiological Principles of Physical Activity (1) Corequisite: Any physical activity course, e.g., KNES 100-190; or permission of SPHL-Kinesiology department. Restriction: Must be in a major in SPHL-School of Public Health. Credit only granted for: KNES200 or KNES201. An introduction to Kinesiology, the study of human movement, through the experience of learning a specific motor skill or being engaged in physical activity. Emphasis on the theories and knowledge underlying the learning and performance of all motor and sport skills.

KNES 210 Essentials of Exercise Science for Fitness Professionals (2) Corequisite: KNES211 or KNES212. Formerly: KNES289N. Basic concepts of human anatomy, exercise physiology, applied kinesiology, nutrition and the physiology of exercise training. Includes the CORE knowledge required for the American Council on Exercise (ACE) Personal Trainer and the ACE Group Fitness Instructor National Certification Examinations.

KNES 211 Methods of Personal Fitness Instruction (1) Prerequisite: Must have completed or be concurrently enrolled in KNES210. Formerly: KNES289P. Development of personal training skills including effective communication, client assessment, fitness testing, goal setting, program design, program implementation, legal responsibilities and business strategies. This course prepares and provides the student the opportunity to sit for the American Council on Exercise (ACE) Personal Trainer National Certification exam.

KNES 212 Methods of Group Fitness Instruction (1) Prerequisite: Must have completed or be concurrently enrolled in KNES210. Formerly: KNES289G. Teaching and evaluation of a variety of group

exercise programs including, step, cardio-boxing, cycling, muscle conditioning and circuit training. This course prepares and provides the student the opportunity to sit for the American Council on Exercise (ACE) Group Fitness Instructor National Certification exam.

KNES 214 Science and Methods of Personal Fitness Instruction (3) Credit only granted for: KNES214 or KNES210 and KNES211, or KNES210 and KNES212, or KNES289N. Formerly: KNES210/KNES211, KNES210/KNES212, and KNES289N. Basic concepts of human anatomy, exercise physiology, applied kinesiology, nutrition and the physiology of exercise training. Includes the CORE knowledge required for the American Council on Exercise (ACE) Personal Trainer certification.

KNES 218 Laboratory in Teaching (1) Prerequisite: Permission of SPHL-Kinesiology department. Repeatable to 2 credits. The course is designed to prepare the student for the student teaching experience by assisting in a class.

KNES 222 Gambling in the New Millennium: Poker, The Preakness, Point-spreads, Powerball and Public Policy (3) Recommended: ENGL101 and COMM107. Is gambling in the public interest? Students will critically examine the various implications of "what it means to gamble" through investigations of various gambling forms, different sectors of the gambling industry and the related economics, along with consumer behavior, sport, public policy and public health in this context.

KNES 240 Exploring Cultural Diversity Through Movement (3) Cultural diversity through an analysis of the different meanings that movement activities serve within different cultural groups. Students will examine how cultural affiliations can influence why and how members of different cultural groups engage in movement activities.

KNES 253 Genetically-Modified Humans: Physical Performance in the Post-Genomic Era (3) Credit only granted for: KNES289X, KNES289H or KNES253. Formerly: KNES289X, KNES289H. In this post-genomic era, can society pursue optimal health and maximal physical performance without changing what it means to be human? The remarkable advances in genome technologies offer both promise and peril for the future of human health and physical performance. Through investigations of genetic enhancement, personalized medicine, genetic screening and talent selection, students in Genetically-Modified Humans analyze the many issues related to the use and manipulation of the human genome.

KNES 260 Science of Physical Activity and Cardiovascular Health (3) Course details (1) the public health importance of and the processes underlying cardiovascular disease, (2) the risk factors for cardiovascular disease and the methods whereby they were identified, and (3) the principles of the scientific evidence supporting the use of physical activity to prevent cardiovascular disease.

KNES 282 Basic Care and Prevention of Athletic Injuries (3) Restriction: Must be in a major within the SPHL-Kinesiology department. Credit only granted for: KNES282 or KNES381. Theoretical and practical foundations of the prevention, treatment and rehabilitation of athletically related injuries. Topics include: physical conditioning, preventive taping, recognition of injuries, first aid and CPR.

KNES 286 Empowering Healthy Physical Activity (3) Learn evidence-based techniques that health professionals use to promote physical activity programs that meet the needs of diverse populations. Develop and implement an intervention plan targeting a specific population.

KNES 287 Sport and American Society (3) Sport will be related to such social problems as delinquency, segregation, collective behavior, and leisure; to social processes such as socialization,

stratification, mobility, and social control; and to those familiar social institutions the family, the school, the church, the military, the economy, the polity, and the mass media.

KNES 289 Topical Investigations (1-6) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 289Y The In/Active City: the Physical Cultures of Metropolitan Baltimore (3)

KNES 293 History of Sport in America (3) The growth and development of sport in America. The transformation of sport within the perspective of American history, including class sport, professionalization, amateurism, and international involvement.

KNES 300 Biomechanics of Human Motion (4) Prerequisite: Minimum grade of C- in BSCI201. And 1 course with a minimum grade of C- from (MATH112, MATH113, MATH115); or (must have completed one General Education: Fundamental Studies-Math course with a minimum grade of C-; and must have math eligibility of MATH140 or higher). Recommended: PHYS121. Restriction: Must be in a major within SPHL-Kinesiology department. The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

KNES 332 Exercise Testing and Prescription for the Fitness Professional (3) Prerequisite: Minimum grade of C- in KNES360. Restriction: Must be in a major within SPHL-Kinesiology department. Credit only granted for: KNES332 or KNES389G. Formerly: KNES389G. Practical applications of exercise physiology and psychology to target fitness instruction for the general adult population Includes discussion of certification standards and professional development as well as evaluation of program safety and current trends.

KNES 333 Motor Development and Fitness for Individuals with Disabilities (3) Prerequisite: Minimum grade of C- in KNES287 and KNES370. Restriction: Must be in a major within the SPHL-Kinesiology department; and must have earned a minimum of 45 credits. Implications of Federal and State regulations for planning and implementing motor development and physical fitness programs for individuals with disabilities. Evaluation strategies for assessing motor performance and fitness levels in educational programs for these individuals.

KNES 334 Adapted Physical Activity: Empowering People with Disabilities to Lead a Healthy and Active Lifestyle. (3) Credit only granted for: KNES498L or KNES334. Formerly: KNES498L. Study of the field of adapted physical activity and its impact on the health and wellness of individuals with disabilities. Students will design an adapted physical activity program proposal and develop the skills needed to empower people with disabilities to participate in physical activity and sports programs and to lead active lifestyles.

KNES 335 Swimming Pool Management (2) Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water; swimming pool first aid; and laws pertaining to swimming pool operation. Qualifies the student for a pool operator's license in most Maryland counties.

KNES 342 Sport, Commerce, and Culture in the Global Marketplace (3) Recommended: KNES287. Credit only granted for: KNES389A or KNES342. Formerly: KNES389A. The Sport, Commerce, and Culture in the Global Marketplace study abroad program is designed for students who are interested in the relationship between sport, culture, and the contemporary global economy.

KNES 350 The Psychology of Sports (3) An exploration of personality factors, including but not limited to motivation, aggression and emotion, as they affect sports participation and motor skill performance.

KNES 355 Sport Management (3) Prerequisite: KNES287. Restriction: Junior standing or higher; and must be in a major within the SPHL-Kinesiology department. Credit only granted for: KNES355 or KNES498M. Application of concepts and issues related to management principles and business concerns across various sections of the sport industry. Principles pertaining to the management of sport organizations.

KNES 360 Physiology of Exercise (4) Prerequisite: Minimum grade of C- in BSCI202 and BSCI201; or permission of SPHL-Kinesiology department. Restriction: Must be in one of the following programs (Kinesiology; Public Health Science). A study of the physiology of exercise, including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt, and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and training.

KNES 370 Motor Development (3) Restriction: Must be in a major within SPHL-Kinesiology department. Motor development across the life span. The developmental sequences of motor skills from birth to old age; neuromaturation of neuromuscular system; analysis of the underlying mechanisms of motor skill development; and correlates of motor development.

KNES 385 Motor Control and Learning (3) Restriction: Must be in a major within SPHL-Kinesiology department. Physiological and cognitive bases for motor control and their applications to the acquisition of movement skills and understanding of movement disorders. Topics include: neurophysiology, motor control theory, sensory/perceptual processes, perception-action coupling, information processing, memory, attention, individual differences, motivation, practice organization and role of feedback.

KNES 386 Experiential Learning (3-6) Prerequisite: Must have completed three KNES core classes. Restriction: Junior standing or higher; and must be in a major within SPHL-Kinesiology department. Explore and analyze concepts and procedures related to a quality service-learning experience to include planning, implementing, and evaluating a service-learning project.

KNES 389 Topical Investigations (1-3) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 390 Practicum/Internship in Teaching Physical Education (3) Corequisite: KNES491. Teaching of children in a physical education setting. Specific emphasis on the development of a professional portfolio demonstrating understanding of curriculum development, lesson planning, progressions and evaluation of teaching performance.

KNES 400 The Foundations of Public Health in Kinesiology (3) Prerequisite: Minimum grade of C- in KNES287; and must have completed or be concurrently enrolled in KNES360. Restriction: Senior standing or higher; and must be in a major within the SPHL-Kinesiology department. Credit only granted for: KNES400 or KNES498A. Formerly: KNES498A. An investigation of the role of physical activity and inactivity in relation to health and well-being through a public health perspective. Past and current perspectives on health promotion, health education, and social policies and approaches will be examined for various populations.

KNES 402 Biomechanics of Sport (3) Prerequisite: KNES300. Mechanical determinants influencing sport techniques. A quantitative, scientific basis for sport analysis with emphasis on the application to numerous sport activities. Evaluation and quantification of the filmed performance of athletes.

KNES 440 Psychology of Athletic Performance (3) Prerequisite: KNES350. Restriction: Junior standing or higher. Credit only granted for: KNES498P, KNES689Z, or KNES440. Examines the psychological factors, mechanisms, and processes in athletic performance. Utilizes a social psychological approach to focus on the study and review of individual performance in both the interpersonal and social context.

KNES 442 Psychology of Exercise and Health (3) Prerequisite: KNES350. Restriction: Junior standing or higher. Credit only granted for: KNES442 or KNES498O. Formerly: KNES498O. Examines the antecedents and consequences of exerciese behavior. Explores motivation, attitude, control, socialization. Proposes intervention strategies at the individual, organizational and societal levels.

KNES 451 Children and Sport: A Psychosocial Perspective (3) Prerequisite: KNES350. Restriction: Junior standing or higher; and must be in a major within SPHL-Kinesiology department. Examination of youth sports from a psychosocial perspective, including the impact of highly structured sports on young athletes and the complex social network of coaches, parents and peers.

KNES 455 Scientific Bases of Athletic Conditioning (3) Prerequisite: KNES360. An examination of physical fitness/athletic conditioning programs stressing the practical application of exercise physiology theory for enhancing athletic performance. Cardiovascular considerations, strength and power development, nutrition, speed, muscular endurance, environmental considerations and ergogenic aids.

KNES 457 Managing Youth Programs: Educational, Fitness and Sport (3) Prerequisite: KNES370 and KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES457 or KNES498Y. An examination of the basic functions involved in managing physical education, fitness, and youth sports programs. Focus on leadership skills, organizational management, and techniques for applying learned skills in a variety of organizational settings that serve the nation's youth.

KNES 460 Physiology of Aging and the Impact of Physical Activity (3) Prerequisite: KNES360. Credit only granted for: KNES498F or KNES460. Formerly: KNES498F. Biology of the aging process in healthy individuals and those with chronic disease, the effects of acute exercise and exercise training on the physiological decline that occurs in humans, and the role that regular physical activity plays on enhancing the quality of life and activities of daily living in individuals.

KNES 461 Exercise and Body Composition (3) Prerequisite: KNES360. An in-depth overview on how body composition is measured, what it is composed of, and the physiological and biochemical signals that change it. The effects of acute and chronic exercise on food storage, breakdown, and use as an energy source, is the major focus. This information is applied to important issues in public health and athletic performance.

KNES 462 Neural Basis of Human Movement (3) Prerequisite: BSCI202, KNES385, and BSCI201; or permission of SPHL-Kinesiology department. An introduction to the neural substrates which underlie postural and volitional movement. Neuroanatomical and neurophysiological basis of motor functioning; past and present conceptualizations of motor control and coordination; movement disorders; and maturation of the neuromuscular system.

KNES 463 Principles and Methods of Physical Activity Interventions (3) Prerequisite: KNES360 and KNES350. Credit only granted for: KNES463 or KNES498G. Understanding of the planning, implementation, and evaluation of physical activity interventions. Intervention methods and practical strategies fo formulate well-conceived physical activity interventions across a variety of settings and participant populations.

KNES 464 Exercise Metabolism: Role in Health and Disease (3) Prerequisite: BSCI202, KNES360, and BSCI201. Credit only granted for: KNES464 or KNES498L. Examines the role of metabolism in kinesiology, especially as it relates to physical inactivity, health and disease. Includes bioenergetics, substrate utilization, cell signaling, and metabolic gene expression and their impact on chronic health conditions or disease.

KNES 465 Physical Activity and Disease Prevention and Treatment (3) Prerequisite: KNES360. Credit only granted for: KNES465 or KNES498A. Critically examines the scientific evidence that supports the use of physical activity to prevent and treat age-related diseases, including cardiovascular disease, diabetes, abnormal lipoprotein-lipid levels, hypertension, obesity, osteoporosis and cancer.

KNES 466 Graded Exercise Testing (3) Prerequisite: KNES360; or permission of SPHL-Kinesiology department. Functional and diagnostic examination of the cardiovascular responses to graded exercise testing. Emphasis on electrophysiology, mechanisms of arrhythmias, normal electrical activation of the heart, axis termination and the normal 12-lead electrocardiogram.

KNES 467 Genetics in Physical Activity and Sport (3) Prerequisite: KNES360. Corequisite: STAT100; or students who have taken courses with comparable content may contact the department. Restriction: Junior standing or higher. Credit only granted for: KNES467 or KNES498Q. Dedicated to understanding the role of genetics in kinesiology, especially within the contexts of physical activity and sport. Specific genes and phenotypes will be explored.

KNES 476 Honors Thesis Proposal (3) Corequisite: KNES478. Restriction: Must be a KNES Honors student; and senior standing. Credit only granted for: KNES476 or KNES498R. Development of honors thesis proposal based on preliminary research and literature review. Presentation of formal proposal to the thesis committee and fellow honors students.

KNES 477 Honors Thesis (3) Prerequisite: KNES476. Corequisite: KNES478. Restriction: Must be a KNES Honors student; and senior standing. Credit only granted for: KNES399 or KNES477. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

KNES 478 Honors Seminar (1-3) Restriction: Must be a KNES Honors student; and junior standing or higher. Repeatable to 4 credits if content differs. Credit only granted for: KNES398 or KNES478. Guided discussion of research topics of current interest.

KNES 482 Socio-behavioral Aspects of Human Movement (3) Prerequisite: KNES293, KNES350, and KNES287. Derivation, formulation, and application of research in the socio-behavioral aspects of human movement.

KNES 483 Sport Marketing and Media (3) Prerequisite: KNES287. Restriction: Junior standing or higher; and must be in a major within SPHL-Kinesiology department. Industry practices in sport marketing and media. Marketing strategies and consumer behavior in different sport contexts. Critical examination of selected social and economic issues related to the buying and selling of sport.

KNES 484 Sporting Hollywood (3) Prerequisite: KNES293 and KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES484 and KNES498N. Popular representations of sport within the film media related to wider social discourses on bodies and the politics of various categories of subjectivity (gender, sexual, racial, class and national).

KNES 485 Sport and Globalization (3) Prerequisite: KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES485 and KNES498T. Examination of sport culture from a global perspective; focuses on theorizing the similarities and differences between various national sporting cultures.

KNES 487 Women, Sports and Culture (3) Prerequisite: KNES287. Restriction: Junior standing or higher. Credit only granted for: KNES498E or KNES487. A study of the historical barriers to women's participation in physical activity, efforts to dismantle those barriers, and the differentiation that exists in women's sport and physical culture today. Exploration of the historical and contemporary factors involving female athletes in U.S. culture.

KNES 496 Quantitative Methods (3) Statistical techniques most frequently used in research pertaining to physical education. Effort is made to provide the student with the necessary skills and to acquaint the student with the interpretations and applications of these techniques.

KNES 497 Kinesiology Senior Seminar (3) Prerequisite: A professional writing course with a minimum grade of C-; and all 7 KNES core courses and 2 KNES option courses. And STAT100; or students who have taken courses with comparable content may contact the department. And minimum grade of C- in KNES400; or must be concurrently enrolled in KNES400. Restriction: Senior standing or higher; and must be in Kinesiology program. Discussions of contemporary issues vital to the discipline, critiques of research in the student's area/areas of special interest, completion of a major project where the student will be asked to demonstrate the ability to carry out investigative processes in problem solving and critical writing under faculty direction.

KNES 498 Special Topics in Kinesiology (3) Prerequisite: Permission of SPHL-Kinesiology department. Repeatable to 99 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

KORA -- Korean

KORA 101 Elementary Korean I (3) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score; and permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must be a non-Heritage student with no background in Korean. Introduction to the Korean language. Primary emphasis on oral skills, but Hangul, the Korean alphabet, will also be introduced.

KORA 102 Elementary Korean II (3) Prerequisite: KORA101; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must be a non-Heritage student; and permission of instructor required for new students. Continued training in elementary spoken and written Korean.

KORA 201 Intermediate Korean I (3) Prerequisite: KORA102; or permission of instructor. An intermediate-level course designed for non-Heritage students. It begins the second year of instruction in the University's two-track Korean Program.

KORA 202 Intermediate Korean II (3) Prerequisite: KORA201; or permission of instructor. The second stage of an intermediate-level course designed for non-Heritage students. It continues the second year of instruction in the University's two track Korean Program.

KORA 211 Introductory Reading for Speakers of Korean I (3) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score; and permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not have completed two or more years of schooling in Korea. Designed to improve the language skills of students already conversant in Korean; instruction entirely in Korean; introduction in hangul; reading and writing of simple journal entries.

KORA 212 Introductory Reading for Speakers of Korean II (3) Prerequisite: KORA211; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not have completed four or more years of schooling in Korea. Continuation of KORA211; grammar, style, usage, and vocabulary of written Korean.

KORA 241 History of the Korean Language (3) The origins of the Korean language and its development from earliest recorded times to the present. The relationship of Korean to other languages. Taught in English.

KORA 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

KORA 311 Korean for Heritage Speakers, Advanced-Low I (3) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score; and KORA212. Or permission of instructor. Restriction: Not open to students who have completed six or more years of schooling in Korea. Begins the second year of Heritage-language instruction in the University's two-track Korean Program.

KORA 312 Korean for Heritage Speakers, Advanced-Low II (3) Prerequisite: KORA311; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Not open to students who have completed eight or more years of schooling in Korea. Concludes the second year of the Heritage-language instruction in the University's two-track Korean Program.

KORA 345 Korean Language and Linguistics (3) Prerequisite: KORA102 or KORA211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Credit only granted for: KORA345 and KORA399A. An exploration of Korean language and society, in particular the role and nature of the alphabet, Korean sounds, lexical and grammatical structures, and usage in today's South Korea.

KORA 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

KORA 398 Special Topics in Korean Studies (3) Repeatable to 9 credits if content differs. Study of particular aspect of Korean language, literature, and/or culture. Topic and language of instruction to be announced when course is offered.

KORA 499 Independent Study Korean (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

LARC -- Landscape Architecture

LARC 120 Digital Fundamentals (2) Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and must be in Landscape Architecture program. An introduction to fundamental computer tools and techniques commonly used in design communication and landscape architecture practice. Non-drafting computer tools will be used to orient basic digital image capture, manipulation, and presentation formatting.

LARC 121 Digital Design Futures (3) Students are provided with the opportunity to 1) explore basic design principles and practice, 2) explore and apply computer concepts and principles, 3) learn and apply basic computer tools used in landscape architecture and allied disciplines, and 4) demonstrate competency in design vocabulary and computer applications through demonstrated deliverables used in the built environment design fields.

LARC 140 Graphic Fundamentals Studio (4) Recommended: Concurrently enrolled in LARC160. Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and must be in Landscape Architecture program. Basic techniques and application of various media for graphic communication associated with landscape architecture.

LARC 141 Design Fundamentals Studio (4) Prerequisite: LARC140. Recommended: Concurrently enrolled in LARC263. Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and sophomore standing or higher; and must be in Landscape Architecture program. Fundamentals of basic design focusing on creative problem solving associated with landscape architecture.

LARC 151 Urban Agriculture: Designing and Assessing Edible Landscapes (3) Students will examine the growing development of urban agriculture and edible landscapes. Urban agriculture has seen a recent growth and interest in cities across the globe. From Paris to New York, from Baltimore to Detroit, urban agriculture is an emerging land use to address a variety of needs. Redevelopment, food deserts, community engagement and environmental justice are just some of the issues and topics that are connected to the recent growth of urban agriculture. This course will take a critical examination of urban agriculture's contribution to the food system, its input and outputs in the urban landscape, and the planning and design of urban agriculture and edible landscapes.

LARC 152 Greening Cities: Who Wins, Who Loses, and Who Cares? (3) Credit only granted for: LARC152 or PLSC289I. Formerly: PLSC289I. "Greening Cities" can have many interpretations: improving or adding urban economic activity, realizing energy efficiency, greening urban transport systems, etc. An important component of livable and sustainable cities and metropolitan ecosystems are the plants and landscapes that are inhabited by plants. With the majority of humans now living in cities, a survey of urban ecosystem principles and an examination of design and planning strategies for plant and landscape resources in urban and metropolitan regions is critical.

LARC 160 Introduction to Landscape Architecture (3) History, theory, philosophy and current practice of the profession of landscape architecture. Explores the interactive relationship between humans and their environment by examining people's perceptions of and changing attitude towards the landscape, as well as, an examination of how these are related to ecological and cultural influences.

LARC 221 Digital Design Tools (3) Prerequisite: LARC120 and LARC141. Recommended: LARC240 and LARC265. Restriction: Sophomore standing or higher; and must be in Landscape Architecture program. The development and application of computing skills as used by the landscape architecture profession. This Computer-Aided Design and Drafting (CADD) course develops computer drafting using

a variety of software programs. It also introduces students to Geographic Information Systems (GIS) mapping technologies.

LARC 240 Graphic Communication and Design Studio (4) Prerequisite: LARC141 and LARC263. Corequisite: LARC221 and LARC265. Restriction: Sophomore standing or higher; and must be in Landscape Architecture program. Exploration of graphic presentation techniques and original concept development for landscape architecture planning and design.

LARC 263 History of Landscape Architecture (3) A survey of landscape architecture history from the ancient Western civilizations to the twentieth century with consideration of parallel developments in the Eastern World, European Africa and the Americas.

LARC 265 Site Analysis and Ecological Principles (3) Prerequisite: LARC141. Corequisite: LARC240 and LARC221. Restriction: Permission of AGNR-Plant Science & Landscape Architecture department; and sophomore standing or higher; and must be in Landscape Architecture program. Credit only granted for: LARC265 or ARCH460. Principles and methods of site analysis with an emphasis on the application of ecological principles in landscape architecture, architecture and planning.

LARC 320 Principles of Site Engineering (3) Prerequisite: LARC221. Corequisite: LARC340. Restriction: Must be in Landscape Architecture program; and junior standing or higher. The study and application of landscape construction principles as applied to grading, drainage, site layout, storm water management, and vehicular and pedestrian circulation.

LARC 321 Landscape Structures and Materials (3) Prerequisite: LARC320; and LARC340. Restriction: Must be in Landscape Architecture program. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

LARC 340 Site Planning and Design Studio (5) Prerequisite: LARC221; and LARC240; and LARC265. Corequisite: LARC320. Restriction: Must be in Landscape Architecture program; and junior standing or higher. An examination of the influence of landscape character and site features (natural and cultural) on landscape architecture, architecture and planning through application in the studio setting.

LARC 341 Regional Design Studio (5) Prerequisite: LARC320; and LARC340. Restriction: Junior standing or higher; and must be in Landscape Architecture program. An examination of the landscape architect's role within the interdisciplinary regional design field incorporating GIS technologies, spatial modeling, and the regional design process.

LARC 388 Honors Thesis Research (3-6) Prerequisite: Must be in the AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

LARC 389 Internship in Landscape Architecture (3) Prerequisite: LARC221; and LARC240; and LARC265. Restriction: Must be in Landscape Architecture program; and junior standing or higher. Repeatable to 6 credits. A supervised internship where students earn credit for work experience related to their career goals. Each student must keep a work log, work on a special project, and produce a report related to this project. An evaluation from the external supervisor of the project is required. Participation requires application to the internship advisor in the preceding semester.

LARC 398 Seminar (1)

LARC 420 Professional Practice (3) Prerequisite: LARC321. Restriction: Must be in Landscape Architecture program. An introduction to and comparative study of the professional concerns of design firms. Focus on planning, legal, ethical, marketing and management considerations of interdisciplinary practices.

LARC 440 Urban Studio Design (5) Prerequisite: LARC321; and LARC340; and LARC341. Restriction: Must be in Landscape Architecture program. The landscape architect's role within the interdisciplinary urban design process, focusing on urban site design issues. Pedestrian friendly site design and the future of sustainable development will be studied.

LARC 450 Environmental Resources (3) Prerequisite: ENST200; or permission of AGNR-Plant Science & Landscape Architecture department. A review of ecosystems and an examination of planning strategies for preservation, conservation, management and development of sensitive natural and cultural landscape resources in the mid-Atlantic region.

LARC 451 Sustainable Communities (3) Explores concepts, strategies and examples of community design which address the needs of a growing population while preserving the environment and its resources.

LARC 452 Green Infrastructure and Community Greening (3) Prerequisite: PLSC100 or PLSC101; or permission of instructor. Restriction: Junior standing or higher. Credit only granted for: LARC489G or LARC452. Formerly: LARC489G. A critical look and exploration of green infrastructure (GI) elements in the built environment in contributing to ecosystems services and the sustainability of the built environment. The course explores the science, issues, challenges, and the policy, planning and design solutions offered by green infrastructure.

LARC 461 People and the Environment (3) Repeatable to 3 credits if content differs. Credit only granted for: LARC489K or LARC461. Formerly: LARC489K. Focus is placed on human and environmental interactions. Students will look at both natural and built environments and how they influence human health and well-being. Many environmental settings will be examined. These include hospitals, public housing neighborhoods, school settings, retirement communities, transportation corridors and green spaces. We will also explore how racial and socio-economic factors affect living and working environmental conditions. Ultimately, students will be using this knowledge to create environments that support individuals, families and various community groups' health and well-being.

LARC 470 Landscape Architecture Seminar (3) Prerequisite: LARC321; and LARC341. Corequisite: LARC440. Restriction: Senior standing; and must be in Landscape Architecture program. A combination of self-directed study, seminar, and lecture formats. An introduction to aspects of research methods, critical analysis, and proposal writing with a focus on urban and community design.

LARC 471 Capstone Studio: Community Design (5) Prerequisite: LARC440; and LARC470. Restriction: Senior standing; and must be in Landscape Architecture program. A capstone experience that emphasizes the integration of critical thinking skills and methodologies introduced throughout the landscape architecture curriculum. Students apply design and analysis methodologies, evaluate alternative solutions, involve community residents and engage in final design development, using the master plan and site design process, report writing, and oral and graphic presentations. Final presentations are open to the university and the community.

LARC 489 Special Topics in Landscape Architecture (1-4) Prerequisite: Permission of AGNR-Plant Science & Landscape Architecture department. Repeatable to 4 credits if content differs. Credit according

to time scheduled and organization of course. A lecture and/or studio course organized as an in-depth study of a selected specialization of landscape architecture not covered by existing courses.

LARC 499 Independent Studies in Landscape Architecture (1-4) Prerequisite: 12 credits in LARC courses; or permission of AGNR-Plant Science & Landscape Architecture department. Restriction: Must be in Landscape Architecture program; or must be in Plant Sciences program. Repeatable to 4 credits if content differs. Independent studies in landscape architecture including field, studio or library research under the direction of a faculty member.

LASC -- Certificate in Latin American Studies

LASC 148 Special Topics in Latin American Studies (3) Topics to be announced when offered.

LASC 234 Issues in Latin American Studies I (3) Also offered as: SPAN234, PORT234. Credit only granted for: LASC234, SPAN234, or PORT234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

LASC 235 Issues in Latin American Studies II (3) Also offered as: SPAN235, PORT235. Credit only granted for: LASC235, SPAN235, or PORT235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of LASC/PORT/SPAN234, but completion of 234 is not a prerequisite. Taught in English.

LASC 248 Special Topics in Latin American Studies (3) Topics to be announced when offered.

LASC 250 History of Colonial Latin America (3) Also offered as: HIST250. Credit only granted for: LASC250 or HIST250. Introductory survey of the history of Latin America from pre-Columbian Indian cultures to the beginning of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments. Major themes include conquest, colonialism, indigenous culture, African slavery, religion, race and ethnicity, and gender ideologies.

LASC 251 Latin America Since Independence (3) Also offered as: HIST251. Credit only granted for: LASC251 or HIST251. Introductory survey of the history of Latin America from the era of independence (c. 1810-1825) through the early 1980s. Major themes include independence and sovereignty, postcolonialism and neocolonialism, nation- and state-building, liberalism, citizenship, economic development and modernization, social organization and stratification, race and ethnicity, gender relations, identity politics, reform and revolution, authoritarianism and democratization, and inter-American relations.

LASC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LASC 286 Internship in Latin American/Caribbean Studies (1-6) Prerequisite: LASC234, SPAN234, LASC235, SPAN235, LASC250, HIST250, LASC251, or HIST251; and permission of Latin American Studies Center required. Restriction: Minimum cumulative GPA of 2.5; and cannot have more than 60 credits total. Additional information: The course is primarily intended for students seeking the Certificate in Latin American Studies, but exceptions will be considered for students with educational or career interests which lie in this area. Student internships must be approved by the Director and students must

secure an appropriate faculty mentor to supervise the internship course. Internship experience with an organization that works with or studies Latin American and/or the Caribbean. This is an experiential learning course that provides semester-long training that enriches the student's academic field of study and the LASC Certificate. Students submit a final written report of how the experience ties into their major field of study.

LASC 348 Special Topics in Latin American Studies (3) Topics to be announced when offered.

LASC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LASC 448 Special Topics in Latin American Studies (3) Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. Intensive study of a selected topic related to Latin American Studies.

LASC 458 Senior Capstone Course in Latin American Studies (3) Prerequisite: LASC234 and LASC235; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must be in Latin American Studies Certificate program; and senior standing. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

LASC 486 Internship in Latin American/Caribbean Studies (1-6) Prerequisite: Student must have completed at least two LASC courses, one of which must be a required/core course (LASC/SPAN234, LASC/SPAN235, LASC/HIST250, or LASC/HIST251); and permission of Latin American Studies Center required. Restriction: Minimum cumulative GPA of 2.5; and must have earned a minimum of 60 credits. Additional information: The course is primarily intended for students seeking the Certificate in Latin American Studies, but exceptions will be considered for students with educational or career interests which lie in this area. Student internships must be approved by the Director, and students must secure an appropriate faculty mentor for the internship course. An internship course will be approved only if a faculty supervisor is available. Internship experience with an organization that works with or studies Latin American and/or the Caribbean. This is an experiential learning course that provides semester-long training that enriches the student's academic field of study and the LASC Certificate. Students submit a final written report of their experience, including critical analysis of the institutional relevance to their major field of study and to Latin American Studies. Students will also be asked to give an oral presentation.

LASC 499 Independent Study in Latin American Studies (1-3) Restriction: Permission of instructor. Independent Study in Latin American Studies.

LATN -- Latin

LATN 101 Elementary Latin I (4) Additional information: A student who has two units of Latin in high school may register for LATN101 for the purposes of review, but ordinarily not for credit.

LATN 102 Elementary Latin II (4) Prerequisite: Must have completed LATN101 at University of Maryland, College Park; or permission of ARHU-Classics department.

LATN 120 Intensive Latin (4) Prerequisite: Permission of ARHU-Classics department. Restriction: Must not have completed LATN102. Elements of Latin grammar and vocabulary; elementary reading. The first year's study of Latin compressed into a single semester.

LATN 201 Intermediate Latin (4) Prerequisite: Must have completed LATN102 at University of Maryland, College Park; or permission of ARHU-Classics department. Formerly: LATN203.

LATN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LATN 301 Plautus (3) Plautine drama. Literary, linguistic and socio-cultural aspects. Readings are in Latin.

LATN 302 Ovid (3) Major works of Ovidian poetry. Literary and moral atmosphere of Augustan age. Readings are in Latin.

LATN 303 Petronius (3) Reading and analysis of Petronius' Satyricon with an emphasis on the literary climate of the Neronian Age and on the emergence of the novel as a literary genre. Readings are in Latin.

LATN 304 Cicero and Sallust (3) Prerequisite: LATN201; or students who have taken courses with comparable content may contact the department. Selected speeches of Cicero and selections from the historian Sallust. Rhetorical, social and political context. Readings are in Latin.

LATN 351 Horace and Catullus (3) Prerequisite: LATN201; or students who have taken courses with comparable content may contact the department. Readings are in Latin.

LATN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LATN 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

LATN 402 Tacitus (3) Readings are in Latin.

LATN 403 Roman Satire (3) Readings are in Latin.

LATN 405 Lucretius (3) Readings are in Latin.

LATN 410 Latin Historians (3) Latin historical writing as a literary genre. Influences, style, and literary techniques. Readings are in Latin.

LATN 415 Vergil's Aeneid (3) Formerly: LATN305. Vergil's Aeneid: readings of selections in Latin and of the entire epic in English translation along with critical essays.

LATN 420 Cicero and Caesar (3) Reading and analysis of texts by M. Tullius Cicero and C. Iulius Caesar, with emphasis on the relationships between them and on the period of the Civil War. Readings are in Latin.

LATN 424 Silver Age Latin (3) Reading and analysis of selected texts. Emphasis on the role of Nero and Seneca in literary developments. Readings are in Latin.

LATN 472 Historical Development of the Latin Language (3) Credit only granted for: LATN472 or LING431. An analysis of the development of the Latin language from archaic times to the Middle Ages.

LATN 488 Latin Readings (3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs. Additional information: Readings are in Latin. The reading of one or more selected Latin authors from antiquity through the Renaissance. Reports.

LATN 499 Independent Study in Latin Language and Literature (1-3) Prerequisite: Permission of ARHU-Classics department. Repeatable to 6 credits if content differs.

LBSC -- Library Science

LBSC 208 Special Topics in Information Studies (3) Repeatable to 6 credits if content differs. Special topics in aspects of information use, technology, and policy.

LBSC 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor.

LBSC 499 Workshops, Clinics, and Institutes (1-9) Repeatable to 9 credits. Workshops, clinics, and institutes developed around specific topics or problems. Primarily for practicing librarians.

LGBT -- Lesbian Gay Bisexual Transgender Studies

LGBT 200 Introduction to Lesbian, Gay, Bisexual, and Transgender Studies (3) Credit only granted for: LGBT200. An interdisciplinary study of the historical and social contexts of personal, cultural and political aspects of LGBT life. Sources from a variety of fields, such as anthropology, history, psychology, sociology, and women's studies, focusing on writings by and about LGBT people.

LGBT 265 Lesbian, Gay, Bisexual, and Transgender Literatures (3) Restriction: Must not have completed ENGL265. Also offered as: ENGL265. Credit only granted for: ENGL265 or LGBT265. Exploration of literary and cultural expressions of sexuality and gender. Study of a range of historical periods and literary genres, such as essay, poetry, novel, drama, film. Topics include sexual norms and dissidence, gender identity and expression, the relationship between aesthetic forms and sexual subjectivity. Interpretation of texts particularly through the lens of queer theory. Examination of how sex and gender intersect with other forms of difference, including race and class.

LGBT 285 Homophobia in the U.S. Society in the New Millennium (3) Credit only granted for: LGBT285 or LGBT289I. Formerly: LGBT289I. An interdisciplinary investigation of the evolving forms of homophobia that continue to thrive and grow in the contemporary U.S., despite historical gains. Special attention to manifestations of homophobia in U.S. social, cultural, political, and legal arenas such as: popular culture/media, religious and cultural/ethnic communities, state and federal legislation, and queer subcultures. Focus on students' powers and responsibilities within struggles to end discrimination based on sexuality.

LGBT 291 International Perspectives on Lesbian and Gay Studies (3) Restriction: Must not have completed CMLT291. Also offered as: CMLT291. Credit only granted for: CMLT291 or LGBT291. Exploration of the construction and representation of sexualities in culture around the globe, with particular emphasis on literature and media.

LGBT 298 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Repeatable to 9 credits if content differs. Study of particular themes and issues in LGBT studies.

LGBT 327 Lesbian, Gay, Bisexual, and Transgender Film and Video (3) Restriction: Junior standing or higher. Comparative analysis of forms, themes, and the politics of representation in film and video by and/or about LGBT people.

LGBT 350 Lesbian, Gay, Bisexual, and Transgender People and Communication (3) Prerequisite: LGBT200; and permission of LGBT Studies Program. Study of differences, stereotypes, and values distinguishing LGBT people and of effective means of communicating such differences to non-LGBT people. Emphasis on contemporary LGBT life and on the development of didactic skills. Preparation and presentation of forums on LGBT people; facilitation of workshops in various outreach locations (residence halls, Greek system, classes).

LGBT 359 Special Topics in Lesbian, Gay, Bisexual, and Transgender Literatures (3) Prerequisite: Must have completed two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as: ENGL359. Study of selected writers or particular themes in Lesbian, Gay, Bisexual and Transgender literatures.

LGBT 386 Lesbian, Gay, Bisexual, and Transgender Community Organization Internship (3-6) Prerequisite: 9 credits in LGBT courses. Restriction: Permission of LGBT Studies Program. Supervised internship experience with a community organization that expressly serves lesbian, gay, bisexual, and transgender people. Students will be expected to relate course material to experience in an analysis of an organization's activities.

LGBT 398 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Prerequisite: LGBT200. Restriction: Sophomore standing or higher. Repeatable to 9 credits if content differs. In-depth study of particular themes and issues in LGBT studies.

LGBT 448 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3) Prerequisite: LGBT200; or permission of LGBT Studies Program. Restriction: Junior standing or higher. Repeatable to 9 credits if content differs. In-depth study of particular themes and issues in LGBT studies.

LGBT 459 Selected Topics in Sexuality and Literature (3) Prerequisite: Must have completed two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as: ENGL459. Detailed study of sexuality as an aspect of literary and cultural expression.

LGBT 465 Theories of Sexuality and Literature (3) Prerequisite: Must have completed two lower-level English courses, at least one in literature. Restriction: Must not have completed ENGL465. Also offered as: ENGL465. Credit only granted for: ENGL465 or LGBT465. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

LGBT 488 Seminar in Lesbian, Gay, Bisexual, and Transgender Studies (1-3) Prerequisite: 9 credits in LGBT courses; and permission of LGBT Studies Program. Recommended: LGBT200. And ENGL265; or CMLT291. Repeatable to 9 credits if content differs. Formerly: CMLT498Y. Developments in theories and methods of LGBT Studies, with emphasis upon interaction between the humanities and the social sciences in the elaboration of this interdisciplinary area of scholarship.

LGBT 494 Lesbian Communities and Differences (3) Prerequisite: Must have completed one course in Women's Studies, preferably WMST200 or WMST250. Also offered as: WMST494. Credit only granted for: LGBT494 or WMST494. The meanings of lesbian communities across many lines of difference. Using lesbian-feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

LGBT 499 Independent Study (1-3) Prerequisite: LGBT200; and permission of LGBT Studies Program. Restriction: Senior standing. Repeatable to 6 credits if content differs. Directed research and analysis in LGBT Studies on a topic selected by the student.

LING -- Linguistics

LING 200 Introductory Linguistics (3) Credit only granted for: HESP120 or LING200. Additional information: Does not count toward the Linguistics major and does not fulfill prerequisite requirements for all upper-level courses. An exploration of the nature of human language, designed for non-majors. Introduction to the basic concepts and methodology of modern linguistic analysis (sound systems, word formation, sentence structure). Additional topics may include: semantics, pragmatics, social aspects of language, dialects, language change, acquisition, writing systems, typology, language universals, comparison with other communication systems, etc.

LING 210 Structure of American Sign Language (3) Overview of phonology, morphology and syntax of American Sign Language. History of the language and the unique social, political and linguistic situation of the deaf.

LING 240 Language and Mind (3) Additional information: Required for Linguistics majors and recommended for students in related fields. The study of language as a cognitive phenomenon. Focus on mastering the concepts and technical skills required for further courses in linguistics. Ways of representing people's knowledge of their native language, ways in which that knowledge is attained naturally by children, and how it is used in speaking and listening. Additional topics may include: animal communication, language and the brain, language and thought.

LING 248 Introduction to Laboratory Research in Linguistics (2-3) Recommended: LING200 or LING240. Restriction: Permission of instructor. Repeatable to 6 credits if content differs. Additional information: A two-semester commitment is required, i.e. Ling248 is followed by Ling448. Individualized, collaborative research course aimed at developing skills for laboratory research in language acquisition, sentence processing or neurolinguistics. Learning to conduct research in laboratory linguistics as part of a research team that will create original research in the field.

LING 262 HERITAGE LANGUAGES AND THEIR SPEAKERS (3) Additional information: One class per week will be in-field instruction in collecting data from heritage speakers. An interdisciplinary examination of the phenomenon of heritage language (a bilingual's home language which is distinct from the dominant language of the wider society). Relationship between linguistic structure, cultural and social aspects of language use, and language change. Interpretations of experimental and theoretical work. Relevance of heritage languages for linguistic theory, language policy, and education.

LING 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LING 311 Syntax I (3) Prerequisite: LING240. Basic concepts, analytical techniques of generative syntax, relation to empirical limits imposed by viewing grammars as representations of a component of human mind. Aspects of current theories.

LING 312 Syntax II (3) Prerequisite: LING311. Continuation of LING311. Development of theories of syntax. Criteria for revising theories. Methods and strategies of scientific efforts to explain natural phenomena.

LING 320 Phonetics (3) Prerequisite: Minimum grade of C- in LING200. Recommended: LING240. Additional information: This course counts as a core course for the linguistics major. Only one of Ling320 or HESP403 can be used to count towards the Linguistics major. Representations and models of acoustic and articulatory phonetics. Develops concepts and skills for description, measurement and scientific analysis of the sound systems of human languages, including various varieties of English.

LING 321 Phonology I (3) Prerequisite: LING240. Properties of sound systems of human languages, basic concepts and analytical techniques of generative phonology. Empirical limits imposed by viewing grammars as cognitive representations. Physiological properties and phonological systems; articulatory phonetics and distinctive feature theory.

LING 322 Phonology II (3) Prerequisite: LING321. Continuation of LING321. Further investigation of phonological phenomena and phonological theory. Revising and elaborating the theory of the phonological representation; interaction of phonology and morphology.

LING 330 Historical Linguistics (3) Prerequisite: LING321. Recommended: LING311. A traditional presentation of language change. Language types and families, sounds and writing systems, grammatical categories. Reconstruction of proto-languages by internal and comparative methods.

LING 350 Philosophy of Language (3) Prerequisite: PHIL170 or LING311. Also offered as: PHIL360. Credit only granted for: LING350 or PHIL360. The nature and function of language and other forms of symbolism from a philosophical perspective.

LING 369 Special Topics in Study Abroad (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

LING 386 Experiential Learning (3-6) Prerequisite: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

LING 410 Grammar and Meaning (3) Prerequisite: Permission of instructor; or LING311. The basic notions of semantic theory: reference, quantification, scope relations, compositionality, thematic relations, tense and time, etc. The role these notions play in grammars of natural languages. Properties of logical form and relationship with syntax.

LING 411 Comparative Syntax (3) Prerequisite: LING312; or permission of instructor. Comparison of data from a variety of languages with respect to syntactic theory in order to investigate how parameters of universal grammar are fixed differently in different languages. Attempts to work out fragments of grammars for some languages.

LING 419 Topics in Syntax (3) Prerequisite: LING311. Repeatable to 12 credits if content differs. Topics vary.

LING 420 Word Formation (3) Prerequisite: LING321 and LING311. Examination of shape and meaning of possible words, both across languages and within particular languages. Interaction between principles of word formation and other components of a grammar: syntax, logical form and phonology.

LING 429 Topics in Phonology (3) Prerequisite: LING322. Repeatable to 6 credits if content differs. Advanced seminar in phonology. Topics vary.

LING 439 Topics in Diachronic Linguistics (3) Repeatable to 6 credits if content differs.

LING 440 Grammars and Cognition (3) Prerequisite: LING321 and LING311. Relationship between the structure, development and functioning of grammars and the structure, development and functioning of other mental systems. Interpretations of experimental and observational work on children's language, aphasia, speech production and comprehension.

LING 444 Child Language Acquisition (3) Prerequisite: LING311. Examines language acquisition in infancy and early childhood: the nature of children's linguistic representations and how these develop naturally. Role of (possible) innate linguistic structure and interaction of such structure with experience. Evaluation of methods and results of current and classic research leading to contemporary models of language development.

LING 448 Advanced Laboratory Research in Linguistics (2-3) Prerequisite: LING248; and (LING200 or LING240). Restriction: Permission of instructor. Repeatable to 6 credits if content differs. Additional information: This course is part of a two-semester sequence. Ling248 is a prerequisite. Ling248 and Ling448 must be completed in the same laboratory. Individualized, collaborative research course aimed at developing skills for laboratory research in language acquisition, sentence processing or neurolinguistics. Conducting a research project in laboratory linguistics as part of a team creating original research relevant to current issues in linguistics.

LING 449 Topics in Psycholinguistics (3) Prerequisite: LING321 and LING311; or permission of ARHU-Linguistics department. Repeatable to 6 credits if content differs. Critical evaluation of primary research in psycholinguistics. Relating theoretical hypotheses to experimental hypotheses and predictions. Evaluation of experimental results. Emphasis on hands-on experience and experimental methodologies. Specific topics vary.

LING 451 Grammars and Variation (3) Prerequisite: LING311. Grammars and the use of language in a variety of styles: formal, casual, literary, etc. Consequences for concepts of grammars. Variation theory. Literary styles.

LING 453 Mathematical Approaches to Language (3) Prerequisite: LING312. The aspects of mathematics used in linguistic discussions: recursion theory, Chomsky's hierarchy of grammars, set theory, Boolean algebra, finite state grammars, context-free grammars, etc. Applications to theories of grammars. Formalizations of grammatical theories.

LING 455 Second Language Acquisition (3) Prerequisite: LING311. Examines second language acquisition from the perspective of Chomsky's 'Universal Grammar'. Relationship between theories of grammars, first language acquisition by children and the learning of second languages by adults.

LING 460 Diversity and Unity in Human Languages (3) Prerequisite: LING240 or LING200. Fundamentals of grammatical typology as they relate to issues in social attitudes towards language. Linguistic structure of standard and non-standard languages and dialects. Relationship of different writing systems to linguistic structure. Issues in bilingualism and multilingualism.

LING 487 Computer Science for Cognitive Studies (3) Credit only granted for: LING487 or PHIL487. List processing and discrete mathematics. Preparation for the study of artificial intelligence and other mathematically oriented branches of cognitive studies. Intended for students of linguistics, philosophy, and psychology. LISP computer language, graphs and trees, the concept of computational complexity, search algorithms.

LING 499 Directed Studies in Linguistics (1-3) Prerequisite: Permission of ARHU-Linguistics department. Repeatable to 6 credits if content differs. Independent study or research on language under the supervision of a faculty member.

MATH -- Mathematics

MATH 003 Developmental Mathematics (3) A review of Intermediate High School Algebra intended for students preparing for one of the credit bearing Fundamental Studies Math Courses. It is taught in special computer labs using a self-paced computer program. The curriculum will be geared toward the student's level of algebra skills and eventual goals. There is a special fee for the course that may be applied in addition to the regular tuition charge. Students should refer to the schedule of classes for details on fees as they apply to a particular semester. The course does not carry any credit toward any degree at the University. The course is repeatable. Topics will be chosen from exponents, polynomials, linear equations, quadratic equations as well as polynomial, rational, exponential and logarithm functions and elementary probability or statistics, depending on the student.

MATH 007 Algebra for MATH 107 (3) A review of Intermediate High School Algebra intended for students preparing for MATH107. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH107, the same semester, which also meets 5 days per week. Continuation in MATH107 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include linear equations, linear inequalities, operations on polynomials, factoring, solutions of quadratic equations, as well as exponential and logarithm functions. MATH007 does not carry any credit toward any degree at the University, nor is it graded. It leads to either MATH107 or MATH003, both of which are graded.

MATH 010 Algebra for MATH 110 (3) A review of Intermediate High School Algebra intended for students preparing for MATH110. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH110, the same semester, which also meets 5 days per week. Continuation in MATH110 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include linear equations, linear inequalities, operations on polynomials, factoring, solutions of quadratic equations, as well as exponential and logarithm functions. MATH010 does not carry any credit toward any degree at the University, nor is it graded. It leads to either MATH110 or MATH003, both of which are graded.

MATH 011 Algebra for MATH 111 (3) A review of Intermediate High School Algebra intended for students preparing for MATH111. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH111, the same semester, which also meets 5 days per week. Continuation in MATH 111 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as

polynomial, rational, exponential and logarithm functions, Venn diagrams, permutations and combinations. MATH011 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH111 (or MATH113 or MATH110), or MATH003, all of which are graded.

MATH 013 Algebra for MATH 113 (3) A review of Intermediate High School Algebra intended for students preparing for MATH113. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH113, the same semester, which also meets 5 days per week. Continuation in MATH113 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as polynomial, rational, exponential, logarithm functions, and trigonometry. MATH013 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH113 (or MATH110), or MATH003, all of which are graded.

MATH 015 Algebra for MATH 115 (3) A review of Intermediate High School Algebra intended for students preparing for MATH115. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH115, the same semester, which also meets 5 days per week. Continuation in MATH115 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations in one and two variables, quadratic equations, as well as polynomial, rational, exponential, logarithm functions and trigonometry. MATH015 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH115 (or MATH111 or MATH113 or MATH110), or MATH003, all of which are graded.

MATH 107 Introduction to Math Modeling and Probability (3) Prerequisite: Must have math eligibility of Math 107 or higher; and math eligibility is based on Math Placement Exam or successful completion of MATH003 with appropriate eligibility. Restriction: Not open to students majoring in mathematics, engineering, business, life sciences, and the physical sciences;; and must not have completed MATH120, MATH130, or MATH140; and must not have completed MATH220; and must not have completed any MATH or STAT course with a prerequisite of MATH120, MATH130, MATH140 or MATH220. Credit only granted for: STAT100, MATH107, MATH110, MATH111, MATH112, or MATH113. Formerly: Math 110 and Math 111. Additional information: Students who have credits for MATH107 may not also receive credits for STAT100, MATH110, MATH 111, MATH112, or MATH113. A goal is to convey the power of mathematics as shown by a variety of problems which can be modeled and solved by quantitative means. Also included is an introduction to probability. Topics include data analysis, equations, systems of equations, inequalities, elementary linear programming, Venn diagrams, counting, basic probability, permutations, combinations, tree diagrams, standard normal and normal distributions. The mathematics of finance is covered. The course includes problem solving and decision making in economics, management, and social sciences.

MATH 110 Elementary Mathematical Models (3) Prerequisite: Must have math eligibility of MATH110 or higher; and math eligibility is based on Math Placement Exam or successful completion of MATH003 with appropriate eligibility. Restriction: Not open to students majoring in mathematics, engineering, business, life sciences, and the physical sciences;; and must not have completed MATH120, MATH130, or MATH140; and must not have completed MATH220; and must not have completed any MATH or STAT course with a prerequisite of MATH120, MATH130, MATH140 or MATH220. Credit only granted for: MATH107, MATH110, MATH112, or MATH113. Topics include simple and compound interest; recursion for computing balances; installment loans and amortization; approximating data by linear models; analysis of applications to real-world collections of data; probability; conditional probability; independence; expected value; graphing and analysis of systems of inequalities; linear programming and applications.

MATH 111 Introduction to Probability (3) Prerequisite: Must have math eligibility of MATH111 or higher; and math eligibility is based on Math Placement Exam or successful completion of MATH003 with appropriate eligibility. Or MATH110. Restriction: Not open to students majoring in mathematics, engineering or the physical sciences; and must not have completed STAT100; and must not have completed any MATH or STAT course with a prerequisite of MATH141. Credit only granted for: MATH107, MATH111 or STAT100. Logic, Boolean algebra, counting, probability, random variables, expectation, applications of the normal probability distribution.

MATH 113 College Algebra and Trigonometry (3) Prerequisite: Must have math eligibility of MATH113 or higher; and math eligibility is based on the Math Placement Exam or the successful completion of MATH 003 with appropriate eligibility. Restriction: Must not have completed MATH120, MATH140, MATH112, MATH115, or MATH130; and must not have completed any course with a prerequisite of MATH120, MATH130, MATH140 or MATH220; and must not have completed MATH220. Credit only granted for: Students who have credits for MATH113 may not also receive credits for MATH107, MATH110, MATH112, or MATH115. Topics include elementary functions including graphs and applications of: polynomial, rational, exponential, and logarithmic functions. Systems of equations and applications. Trigonometric functions: angle and radian measure, graphs and applications.

MATH 115 Precalculus (3) Prerequisite: Must have math eligibility of MATH115 or higher; and math eligibility is based on the Math Placement Exam or the successful completion of MATH003 with appropriate eligibility. Or MATH113. Restriction: Must not have completed MATH140; and must not have completed any MATH or STAT course with a prerequisite of MATH140. Credit only granted for: Students who have credits for MATH115 may not also receive credits for MATH112 or MATH113. Preparation for MATH120, MATH130 or MATH140. Elementary functions and graphs: polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. Algebraic techniques preparatory for calculus.

MATH 120 Elementary Calculus I (3) Prerequisite: 1 course with a minimum grade of C- from (MATH112, MATH113, MATH115). Or must have math eligibility of MATH120 or higher; and math eligibility is based on the Math Placement Test. Restriction: Not open to students majoring in mathematics, engineering, the biological sciences, biochemistry, chemistry, or the physical sciences. Credit only granted for: MATH120, MATH130, MATH140, or MATH220. Formerly: MATH 220. Basic ideas of differential and integral calculus, with emphasis on elementary techniques of differentiation and applications.

MATH 121 Elementary Calculus II (3) Prerequisite: MATH120, MATH130, or MATH140; or must have completed MATH220. Restriction: Not open to students majoring in mathematics, engineering, the biological sciences, biochemistry, chemistry, or the physical sciences. Credit only granted for: MATH121, MATH131, MATH141, or MATH221. Formerly: MATH 221. Differential and integral calculus, with emphasis on elementary techniques of integration and applications.

MATH 130 Calculus I for the Life Sciences (4) Prerequisite: Minimum grade of C- in MATH115. Restriction: Must be in a major in CMNS-Biological Sciences UG Program; and not open to students majoring in mathematics, engineering, or the physical sciences. Credit only granted for: MATH120, MATH130, MATH220, or MATH140. Basic ideas of differential integral calculus, with emphasis on elementary techniques and applications to the life sciences.

MATH 131 Calculus II for Life Sciences (4) Prerequisite: Minimum grade of C- in MATH130; or minimum grade of C- in MATH140. Restriction: Must be in a major in CMNS-Biological Sciences UG

Program. Credit only granted for: MATH121, MATH131, MATH141, or MATH221. Continuation of MATH130, including an introduction to autonomous differential equations, probability (including conditional probability and the normal and binomial distributions), and statistical reasoning (including confidence intervals). Alongside the mathematical concepts will be applications in biology.

MATH 140 Calculus I (4) Prerequisite: Minimum grade of C- in MATH115. Or must have math eligibility of MATH140 or higher; and math eligibility is based on the Math Placement Test. Credit only granted for: MATH120, MATH130, MATH220, or MATH140. Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite and indefinite integrals, and calculation of area. The course is especially recommended for science, engineering and mathematics majors.

MATH 141 Calculus II (4) Prerequisite: Minimum grade of C- in MATH140. Or minimum grade of B- in MATH130; and permission of CMNS-Mathematics department. Credit only granted for: MATH121, MATH131, MATH141, or MATH221. Continuation of MATH140, including techniques of integration, improper integrals, applications of integration (such as volumes, work, arc length, moments), inverse functions, exponential and logarithmic functions, sequences and series.

MATH 199 Special Topics in Mathematics (3) Prerequisite: Permission of CMNS-Mathematics department. Many games have a mathematical component. We will introduce several games, play them, and investigate the underlying mathematics. Students will work in teams on projects that involve developing strategies for new games.

MATH 206 Introduction to Matlab (1) Prerequisite: 1 course with a minimum grade of C- from (MATH141, MATH131). Credit only granted for: CMSC206, CMSC298M, MATH206, or MATH299M. This course is intended to prepare students for subsequent courses requiring computation with MATLAB. Covers basics of MATLAB including simple commands, variables, solving equations, graphing differentiation and integration, matrices and vectors, functions, M-files and fundamentals of programming in the MATLAB environment. When offered in Winter and Summer terms, the course is offered in a format suitable for online distance learning.

MATH 212 Elements of Numbers and Operations (3) Prerequisite: Must have completed one year of college preparatory algebra. Restriction: Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education). Credit only granted for: MATH212 or MATH210. Reviews and extends topics of arithmetic and number theory related to the elementary school curriculum, particularly number systems and operations with natural numbers, integers, and rationals.

MATH 213 Elements of Geometry and Measurement (3) Prerequisite: MATH212. Restriction: Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education). Credit only granted for: MATH211 or MATH213. Properties of geometric objects in two and three dimensions; parallel lines, curves and polygons; ratio, proportion, similarity; transformational geometry and measurement, constructions, justifications and proofs.

MATH 214 Elements of Probability and Statistics (3) Prerequisite: MATH212. Restriction: Must be in one of the following programs (Early Childhood Education; Special Education; Elementary Education). Credit only granted for: MATH211 or MATH214. Permutations and combinations; probability; collecting and representing data; using statistics to analyze and interpret data.

MATH 240 Introduction to Linear Algebra (4) Prerequisite: Minimum grade of C- in MATH131; or MATH141. Credit only granted for: BIOE371, MATH240, MATH341, or MATH461. Basic concepts of

linear algebra: vector spaces, applications to line and plane geometry, linear equations and matrices, similar matrices, linear transformations, eigenvalues, determinants and quadratic forms.

MATH 241 Calculus III (4) Prerequisite: Minimum grade of C- in MATH141. Credit only granted for: MATH241 or MATH340. Introduction to multivariable calculus, including vectors and vector-valued functions, partial derivatives and applications of partial derivatives (such as tangent planes and Lagrange multipliers), multiple integrals, volume, surface area, and the classical theorems of Green, Stokes and Gauss.

MATH 246 Differential Equations for Scientists and Engineers (3) Prerequisite: Minimum grade of C- in MATH141. Credit only granted for: MATH246 or MATH341. An introduction to the basic methods of solving ordinary differential equations. Equations of first and second order, linear differential equations, Laplace transforms, numerical methods and the qualitative theory of differential equations.

MATH 274 History of Mathematics (3) Prerequisite: MATH120, MATH130, or MATH140; or must have completed MATH220. An overview of aspects in the history of mathematics from its beginning in the concrete problem solving of ancient times through the development of abstraction in the 19th and 20th centuries. The course considers both mathematical ideas and the context in which they developed in various civilizations around the world.

MATH 299 Selected Topics in Mathematics (1-3) Prerequisite: Permission of CMNS-Mathematics department. Topics of special interest under the general guidance of the departmental committee on undergraduate studies.

MATH 307 A Condensed Introduction to Mathematical Proof (2) Prerequisite: 1 course with a minimum grade of C- from (MATH241, MATH340). Recommended: MATH461, MATH240, or MATH341. Credit only granted for: MATH307 or MATH310. Additional information: Math majors may not use this course to satisfy the upper-level math requirement. Students develop proof-writing skills including logic of proofs, induction and convergence concepts.

MATH 310 Introduction to Mathematical Proof (3) Prerequisite: Minimum grade of C- in MATH141; and must have completed or be concurrently enrolled in MATH240, MATH341, or MATH461; and must have completed or be concurrently enrolled in MATH241 or MATH340. Restriction: Must be in a major within the CMNS-Mathematics department. Credit only granted for: MATH307 or MATH310. Additional information: Math majors may not use this course to satisfy an upper-level requirement. To develop the students' ability to construct a rigorous proof of a mathematical claim. Students will also be made aware of mathematical results that are of interest to those wishing to analyze a particular mathematical model. Topics will be drawn from logic, set theory, structure of the number line, elementary topology, metric spaces, functions, sequences and continuity.

MATH 312 Mathematical Reasoning and Proof for Pre-Service Middle School Teachers (3) Prerequisite: MATH212 and MATH213. Restriction: Must be in one of the following programs (Elementary Education; Special Education; Middle School Education). Reasoning and proof as addressed in the middle school curriculum. Topics include proportional reasoning, logic and proof, types of numbers, field axioms, Euclidean and non-Euclidean geometry.

MATH 314 Introduction to Probability, Data, Analysis and Statistics for Preservice Middle School Teachers (3) Prerequisite: MATH214. Restriction: Must be in one of the following programs (Elementary Education; Special Education; Middle School Education). Credit only granted for: MATH314 or STAT100. Analysis of bivariate data, probability and randomness, law of large numbers,

central limit theorem, probabilities for independent and dependent events, counting techniques, random variables and probability distributions, expected values, sampling distributions, and confidence intervals.

MATH 315 Algebra for Preservice Middle School Teachers (3) Prerequisite: MATH212. Restriction: Must be in one of the following programs (Elementary Education; Special Education; Middle School Education). Credit only granted for: MATH112, MATH113, or MATH315. Algebraic concepts and techniques developed in the middle grades, with their larger mathematical context. Equations, inequalities and functions (linear, polynomial, exponential, logarithmic), with multiple representations of relationships. Common misconceptions of beginning algebra students.

MATH 340 Multivariable Calculus, Linear Algebra and Differential Equations I (Honors) (4) Prerequisite: MATH141 and MATH140; and permission of CMNS-Mathematics department; and permission will be granted only to incoming freshmen. Credit only granted for: MATH241 or MATH340. First semester of the MATH340-341 sequence which gives a unified and enriched treatment of multivariable calculus, linear algebra and ordinary differential equations, with supplementary material from subjects such as differential geometry, Fourier series and calculus of variations. Students completing MATH340-341 will have covered the material of MATH240, MATH241, and MATH246, and may not also receive credit for MATH240, MATH241 or MATH246.

MATH 341 Multivariable Calculus, Linear Algebra, Differential Equations II (Honors) (4) Prerequisite: Minimum grade of C- in MATH340. Restriction: Open to second semester Freshmen only. Credit only granted for: MATH240, MATH246, MATH341 or MATH461. A continuation of MATH340.

MATH 386 Experiential Learning (3-6) Prerequisite: Must have learning proposal approved by the CMNS Mathematics Department.

MATH 401 Applications of Linear Algebra (3) Prerequisite: 1 course with a minimum grade of C- from (MATH461, MATH240, MATH341). Various applications of linear algebra: theory of finite games, linear programming, matrix methods as applied to finite Markov chains, random walk, incidence matrices, graphs and directed graphs, networks and transportation problems.

MATH 402 Algebraic Structures (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461). Restriction: Must not be in any of the following programs (Mathematics (Master's); Mathematics (Doctoral)). Credit only granted for: MATH402 or MATH403. For students having only limited experience with rigorous mathematical proofs. Parallels MATH403. Students planning graduate work in mathematics should take MATH403. Groups, rings, integral domains and fields, detailed study of several groups; properties of integers and polynomials. Emphasis is on the origin of the mathematical ideas studied and the logical structure of the subject.

MATH 403 Introduction to Abstract Algebra (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH340); and 1 course with a minimum grade of C- from (MATH341, MATH241); and minimum grade of C- in MATH310. Or students who have taken courses with comparable content may contact the department. Credit only granted for: MATH402 or MATH403. Integers; groups, rings, integral domains, fields.

MATH 404 Field Theory (3) Prerequisite: MATH403. Algebraic and transcendental elements, Galois theory, constructions with straight-edge and compass, solutions of equations of low degrees, insolubility of the quintic equation, Sylow theorems, fundamental theorem of finite Abelian groups.

MATH 405 Linear Algebra (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and minimum grade of C- in MATH310. An abstract treatment of finite dimensional vector spaces. Linear transformations and their invariants.

MATH 406 Introduction to Number Theory (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH241, MATH246, MATH340, MATH341, MATH461); or permission of CMNS-Mathematics department. Integers, divisibility, prime numbers, unique factorization, congruences, quadratic reciprocity, Diophantine equations and arithmetic functions.

MATH 410 Advanced Calculus I (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241); and minimum grade of C- in MATH310. Or students who have taken courses with comparable content may contact the department. First semester of a year course. Subjects covered during the year are: sequences and series of numbers, continuity and differentiability of real valued functions of one variable, the Riemann integral, sequences of functions and power series. Functions of several variables including partial derivatives, multiple integrals, line and surface integrals. The implicit function theorem.

MATH 411 Advanced Calculus II (3) Prerequisite: Minimum grade of C- in MATH410; and permission of CMNS-Mathematics department. Credit only granted for: MATH411 or MATH412. Continuation of MATH410.

MATH 412 Advanced Calculus with Applications (3) Prerequisite: Minimum grade of C- in MATH410; and permission of CMNS-Mathematics department. Credit only granted for: MATH411 or MATH412. Analysis in several variables, and applications, from a computational perspective.

MATH 416 Applied Harmonic Analysis: An Introduction to Signal Processing (3) Prerequisite: Minimum grade of C- in MATH141; and 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and familiarity with MATLAB is required. Introduces students to the mathematical concepts arising in signal analysis from the applied harmonic analysis point of view. Topics include applied linear algebra, Fourier series, discrete Fourier transform, Fourier transform, Shannon Sampling Theorem, wavelet bases, multiresolution analysis, and discrete wavelet transform.

MATH 420 Mathematical Modeling (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH246, MATH341); and minimum grade of C- in STAT400. And 1 course with a minimum grade of C- from (CMSC106, CMSC131); or students who have taken courses with comparable content may contact the department. Also offered as: AMSC420. Credit only granted for: AMSC420 or MATH420. The course will develop skills in data-driven mathematical modeling through individual and group projects. Emphasis will be placed on both analytical and computational methods, and on effective oral and written presentation of results.

MATH 424 Introduction to the Mathematics of Finance (3) Prerequisite: Minimum grade of C- in MATH141; and 1 course with a minimum grade of C- from (STAT400, STAT410); and permission of CMNS-Mathematics department. Recommended: MATH246, MATH240, MATH241, MATH340, or MATH341. Credit only granted for: BMGT444, MATH424. Introduction to the mathematical models used in finance and economics with emphasis on pricing derivative instruments. Designed for students in mathematics, computer science, engineering, finance and physics. Financial markets and instruments; elements from basic probability theory; interest rates and present value analysis; normal distribution of stock returns; option pricing; arbitrage pricing theory; the multiperiod binomial model; the Black-Scholes

option pricing formula; proof of the Black-Scholes option pricing formula and applications; trading and hedging of options; Delta hedging; utility functions and portfolio theory; elementary stochastic calculus; Ito's Lemma; the Black-Scholes equation and its conversion to the heat equation.

MATH 430 Euclidean and Non-Euclidean Geometries (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH341, MATH461). Hilbert's axioms for Euclidean geometry. Neutral geometry: the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyperbolic geometry. Existence and properties of isometries.

MATH 431 Geometry for Computer Applications (3) Prerequisite: 1 course with a minimum grade of C- from (MATH461, MATH240, MATH341). Topics from projective geometry and transformation geometry, emphasizing the two-dimensional representation of three-dimensional objects and objects moving about in the plane and space. The emphasis will be on formulas and algorithms of immediate use in computer graphics.

MATH 432 Introduction to Topology (3) Prerequisite: Minimum grade of C- in MATH410. Metric spaces, topological spaces, connectedness, compactness (including Heine-Borel and Bolzano-Weierstrass theorems), Cantor sets, continuous maps and homeomorphisms, fundamental group (homotopy, covering spaces, the fundamental theorem of algebra, Brouwer fixed point theorem), surfaces (e.g., Euler characteristic, the index of a vector field, hairy sphere theorem), elements of combinatorial topology (graphs and trees, planarity, coloring problems).

MATH 436 Differential Geometry of Curves and Surfaces I (3) Prerequisite: MATH241 or MATH340; and (MATH461, MATH240, or MATH341); and must have completed two 400-level MATH courses (not including MATH461, 478, and 480's). Curves in the plane and Euclidean space, moving frames, surfaces in Euclidean space, orientability of surfaces; Gaussian and mean curvatures; surfaces of revolution, ruled surfaces, minimal surfaces, special curves on surfaces, "Theorema Egregium"; the intrinsic geometry of surfaces.

MATH 437 Differential Forms (3) Prerequisite: MATH241 or MATH340; and (MATH461, MATH240, or MATH341). Recommended: MATH405, MATH403, MATH436, MATH410, or MATH432. Introduction to differential forms and their applications, and unites the fundamental theorems of multivariable calculus in a general Stokes Theorem that is valid in great generality. It develops this theory and technique to perform calculations in analysis and geometry. Topics include an introduction to topological spaces, the Gauss-Bonnet Theorem, Gauss's formula for the linking number, and the Cauchy Integral Theorem. Applications include Maxwell's equations of electromagnetism, connections and gauge theory, and symplectic geometry and Hamiltonian dynamics.

MATH 445 Elementary Mathematical Logic (3) Prerequisite: Minimum grade of C- in MATH141. Elementary development of propositional and predicate logic, including semantics and deductive systems and with a discussion of completeness, incompleteness and the decision problem.

MATH 446 Axiomatic Set Theory (3) Prerequisite: MATH403 or MATH410. Development of a system of axiomatic set theory, choice principles, induction principles, ordinal arithmetic including discussion of cancellation laws, divisibility, canonical expansions, cardinal arithmetic including connections with the axiom of choice, Hartog's theorem, Konig's theorem, properties of regular, singular and inaccessible cardinals.

MATH 452 Introduction to Dynamics and Chaos (3) Prerequisite: Minimum grade of C- in MATH246; and 1 course with a minimum grade of C- from (MATH240, MATH461). Or minimum grade

of C- in MATH340 and MATH341. Also offered as: AMSC452. Credit only granted for: AMSC452 or MATH452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

MATH 456 Cryptology (3) Prerequisite: Must have completed two 400-level MATH courses (not to include MATH 461, 478, and 480's) with a minimum grade of C-. Or minimum grade of C- in CMSC351 and CMSC330; and permission of CMNS-Mathematics department. Also offered as: CMSC456. Credit only granted for: MATH456 or CMSC456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability. Computer science topics include complexity theory.

MATH 461 Linear Algebra for Scientists and Engineers (3) Prerequisite: Minimum grade of C- in MATH141; and must have completed any MATH or STAT course with a prerequisite of MATH141. Credit only granted for: BIOE371, MATH240, MATH341, or MATH461. Additional information: This course may not be used towards the upper level math requirements for MATH/STAT majors. Basic concepts of linear algebra. This course is similar to MATH 240, but with more extensive coverage of the topics needed in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form.

MATH 462 Partial Differential Equations (3) Prerequisite: 1 course with a minimum grade of C- from (MATH241, MATH340); and 1 course with a minimum grade of C- from (MATH246, MATH341). Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations. Introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation. Boundary value problems, initial value problems and initial-boundary value problems.

MATH 463 Complex Variables for Scientists and Engineers (3) Prerequisite: 1 course with a minimum grade of C- from (MATH241, MATH340). The algebra of complex numbers, analytic functions, mapping properties of the elementary functions. Cauchy integral formula. Theory of residues and application to evaluation of integrals. Conformal mapping.

MATH 464 Transform Methods for Scientists and Engineers (3) Prerequisite: 1 course with a minimum grade of C- from (MATH246, MATH341). Fourier transform, Fourier series, discrete fast Fourier transform (DFT and FFT). Laplace transform. Poisson summations, and sampling. Optional Topics: Distributions and operational calculus, PDEs, Wavelet transform, Radon transform and applications such as Imaging, Speech Processing, PDEs of Mathematical Physics, Communications, Inverse Problems.

MATH 470 Mathematics for Secondary Education (3) Prerequisite: MATH141 and MATH140; and must have completed one 400-level MATH course (not to include MATH461, 478, and 480's). An advanced perspective on some of the core mathematics underlying high school mathematics courses. Topics include number systems, functions of one variable, equations, inequalities, trigonometric functions, curve fitting, and polynomials. The course includes an analysis of alternate approaches to mathematical ideas and problems, and makes connections between ideas that may have been studied separately in different high school and college courses.

MATH 475 Combinatorics and Graph Theory (3) Prerequisite: MATH240 or MATH341; and (MATH241 or MATH340); and permission of CMNS-Mathematics department. Also offered as:

CMSC475. Credit only granted for: MATH475 or CMSC475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

MATH 478 Selected Topics For Teachers of Mathematics (1-3) Prerequisite: Permission of CMNS-Mathematics department. Additional information: Math majors may not use this course to fulfill the upper-level math requirement.

MATH 480 Algebra for Middle School Teachers (3) Prerequisite: MATH214. Restriction: Must be a middle school teacher; and permission of CMNS-Mathematics department. Credit only granted for: MATH480 or MATH483. Additional information: Not applicable to MATH/STAT major or minor requirements. Prepares teachers with elementary certification to teach Algebra 1 in middle school. Focuses on basic algebra concepts and related theoretical ideas.

MATH 481 Statistics and Data Analysis for Middle School Teachers (3) Prerequisite: MATH214. Restriction: Must be a middle school teacher; and permission of CMNS-Mathematics department. Credit only granted for: MATH481 or MATH485. Additional information: Not applicable to MATH/STAT major or minor requirements. Prepares teachers with elementary certification to teach simple data analysis and probability in middle school. Focuses on understanding basic statistics, data analysis, and related theoretical ideas.

MATH 482 Geometry for Middle School Teachers (3) Prerequisite: MATH214. Restriction: Must be a middle school teacher; and permission of CMNS-Mathematics department. Credit only granted for: MATH482 or MATH484. Additional information: Not Applicable to MATH/STAT major or minor requirements. Prepares teachers with elementary certification to teach geometry in middle school. Focuses on understanding basic geometry concepts and related theoretical ideas.

MATH 483 Algebra for High School Teachers (3) Prerequisite: MATH141. Restriction: Senior standing. Credit only granted for: MATH483 or MATH480. Additional information: May not be used towards the upper level math requirements for the MATH minor. Focuses on concepts related to algebra and trigonometry, including functions, equations, inequalities, and data analysis. Assumes a good understanding of calculus.

MATH 484 Geometry for High School Teachers (3) Prerequisite: MATH141; or students who have taken courses with comparable content may contact the department. Restriction: Senior standing. Credit only granted for: MATH482, MATH484, or MATH498E. Formerly: MATH498E. Focuses on concepts related to geometry, including several geometry axiom schemes, transformations, and similarity. Includes constructions with Geometer's Sketchpad.

MATH 485 Statistics for High School Teachers (3) Prerequisite: MATH141; or students who have taken courses with comparable content may contact the department. Credit only granted for: MATH481 or MATH485. Additional information: May not be used towards the upper level math requirements for the MATH minor. Focuses on concepts related to statistics and data analysis, including probability, sampling, distribution of data, and inference.

MATH 486 Calculus for High School Teachers (3) Prerequisite: MATH141; and cannot be used toward the upper level math requirements for MATH/STAT majors. Focuses on concepts related to one-variable calculus including limits, continuity, derivative, integrals, series, and applications of these topics.

MATH 487 Number for Middle Grades Teachers (3) Prerequisite: Must have admission to M.A. or M.Ed. with concentration in Mathematics Education; or permission of CMNS-Mathematics department. Restriction: This course may not be used towards the upper level math requirements for the MATH/STAT major. Credit only granted for: MATH487 or MATH498K. Formerly: MATH498K. The rational number and proportional reasoning concepts developed in the middle grades and the larger mathematical context for these. Multiple representations of relationships, including verbal descriptions, diagrams, tables, graphs, and equations. Common misconceptions.

MATH 489 Research Interactions in Mathematics (1-3) Prerequisite: Permission of CMNS-Mathematics department. Repeatable to 10 credits if content differs. Students participate in a vertically integrated (undergraduate, graduate and/or postdoctoral, faculty) mathematics research group. Format varies. Students and supervising faculty will agree to a contract which must be approved by the department. Up to three credits of MATH489 may be applied to the mathematics degree requirements. See the department's MATH489 online syllabus for further information.

MATH 498 Selected Topics in Mathematics (1-9) Repeatable to 9 credits if content differs. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the departmental committee on undergraduate studies.

MEES -- Marine-Estuarine-Environmental Sciences

MEES 432 Physiological Ecology of Animals (3) Prerequisite: BSCI361; or students who have taken courses with comparable content may contact the department; or permission of instructor. Credit only granted for: MEES498E, MEES698E, MEES432, or MEES632. Formerly: MEES498E. An examination of the influence of environmental constrains on animal function and energetic efficiency in the context of abiotic conditions in the habitats occupied by individuals.

MEES 498 Topics in Marine-Estuarine-Environmental Sciences (1-4) Lecture and/or laboratory series organized to study a selected area of marine-estuarine-environmental sciences not otherwise considered in formal courses.

MIEH -- Maryland Institute for Applied Environmental Health

MIEH 240 Global Health Projects: Addressing Health Needs with a focus on Reciprocity and Relationships (3) Explore the needs of global communities, design interventions, and reflect on the potential outcomes in improving health in the communities served, while also focusing on students' own subjective experiences. Students will explore their roles as learners and the role of community members as local experts.

MIEH 300 A Public Health Perspective: Introduction to Environmental Health (3) Prerequisite: CHEM131 and CHEM132. Restriction: Junior standing or higher. And must be in Public Health Science program; or permission of SPHL-School of Public Health. Credit only granted for: SPHL498N or MIEH300. Formerly: SPHL498N. Environmental health is that branch of public health that deals with the human health effects of exposure to chemical, physical, and biological agents in the community, workplace, and home. Activities within Environmental Health Sciences are associated with recognizing, assessing, understanding, and mitigating the impacts of chemical, physical, and biological agents as well as understanding how human behavior and action impacts the environment. The Environmental health field is a broad, multi-disciplinary field. Environmental health scientists face complex problems requiring multi-disciplinary approaches. This course focuses on the central concepts, principles, issues, and

applications of the essential scientific components and strategies of control of major environmental health problems.

MIEH 309 Environmental Health Research (1-3) Restriction: Must have completed a minimum of 45 credits; and must have permission of instructor. Repeatable to 9 credits if content differs. This research-based course will provide undergraduates with the opportunity to work closely with one of the faculty researchers in the Maryland Institute for Applied Environmental Health (MIAEH) within the School of Public Health. Our research covers multiple fields within the environmental health sciences (e.g. environmental epidemiology, exposure science, risk assessment, environmental microbiology, environmental microbial genomics, food toxicology, airborne infection transmission, environmental justice, and children's environmental health) that involve either laboratory-based research or non-laboratory based studies. Students will not only gain invaluable research and interpersonal skills but also contribute to MIAEH's ongoing environmental health research programs.

MIEH 321 Syphilis to SARS: Climate Change, Development and Emergence of Infectious Diseases (3) Syphilis to SARS will examine the influences of environmental factors, economic development, migration, and land use changes on emergence and reemergence of infectious diseases. Population growth, development, and climate change are impacting natural reservoirs of infectious diseases and how they transmit through human populations. The course will look at both historical accounts and newly emerging and reemerging diseases including influenza as examples of our role in altering the diseases that threaten us. We will also critically evaluate how the issues are portrayed in news and entertainment media and controversy about the ethics of research on deadly viruses.

MIEH 330 Environmental Justice, Racism, and Environmental Health Disparities: How where you live can kill you (3) Prerequisite: Minimum grade of C- in MIEH300. Restriction: Must be in a major in SPHL-School of Public Health. Credit only granted for: MIEH210 or MIEH330. Formerly: MIEH210. Examination of environmental justice history, theory and science; discussion of linkages between the physical, natural, and social environments and environmental injustice; analysis of how environmental injustice can lead to adverse health conditions and environmental health disparities; discuss environmental justice case studies; and understanding of tools that can be used to understand and address environmental justice issues.

MIEH 331 The Built Environment, Sustainability, and Public Health: The Good, the Bad, and the Ugly (3) Recommended: Completion of MIEH300 with a C- or higher is recommended. Restriction: Must have earned a minimum of 45 credits. Credit only granted for: MIEH215 or MIEH331. Formerly: MIEH215. Provides students with a fundamental understanding of theory, concepts, and issues related to the built environment; how the built environment influences behaviors and health outcomes; and opportunities to improve the built environment through planning, zoning, and community development initiatives that can make communities healthier, just, and more sustainable.

MIEH 400 Introduction to Global Health (3) Prerequisite: Minimum grade of C- in MIEH300. Restriction: Must be in Public Health Science program; or permission of SPHL-School of Public Health. And must have earned a minimum of 60 credits. Credit only granted for: MIEH400 or SPHL498A. Formerly: SPHL498A. Exploration of theoretical frameworks and practical perspectives on issues shaping the global health panorama. Determinants examined through: biological and epidemiological; social, cultural and economic; environmental and geographic; multi-section, legal and institutional perspectives with synopsis of how these issues are addressed by international and community organizations in developing countries.

MIEH 480 Introduction to Occupational Health (3) Prerequisite: Minimum grade of C- in MIEH300. Recommended: BSCI201; and EPIB301. Restriction: Must be in a major in SPHL-School of Public Health. An introduction to the field of occupational health and safety. Introduction to basic concepts in occupational safety and health, as well as the methods used to anticipate, recognize, evaluate, and control environmental factors or stresses arising in or from the workplace. In addition to instructor-led lectures, guest speakers will be invited to discuss case studies and/or discuss workplace hazards unique to specific populations.

MLAW -- MPower Undergraduate Law Programs

MLAW 100 Justice and the Law (3) Restriction: Course enrollment is restricted to students in the College Park Scholars Justice and Legal Thought Program (CPJT). An exploration into the relationship between justice and law, including psychological, philosophical, political and legal approaches to justice, as well as an analytical framework for understanding human rights.

MLAW 150 Law in a Just Society (3) Restriction: Must be in the College Park Scholars - Justice and Legal Thought program. An exploration of the theoretical questions relating to such fundamental questions of jurisprudence as "what is law?" and "how can law be deployed as both an enemy and ally of justice?

MLAW 217 Mock Trial (3) Also offered as: GVPT217. Credit only granted for: MLAW217, GVPT217, or GVPT319A. Formerly: GVPT319A. Experience the excitement and reward of arguing, and perhaps winning your client's case in court. Mock Trial is designed for students who are interested in learning practical techniques for shaping the evidence, using the law, and exploiting the courtroom to create a coherent and convincing case theory.

MLAW 298 Special Topics in Legal Studies (1-3) Repeatable to 6 credits if content differs. Substantive and experiential approaches to legal phenomena. Topics vary.

MLAW 304 Introduction to Law and Social Inquiry (3) Restriction: Must be in the Law and Society (MLAW) minor. An exploration of the relationship between law and society from an interdisciplinary perspective. Major themes cover the impact of law on society, society on law and social change.

MLAW 305 Law and Legal Institutions in Social Context (3) Prerequisite: MLAW304. Restriction: Must be a student in the Law and Society Minor. An exploration of case law, statutes, and regulations separately and together in their social context.

MLAW 358 Selected Topics in Law and Society (3) Restriction: Must be in the Law and Society Minor. Repeatable to 6 credits if content differs. An interdisciplinary exploration of topics in law and society. Major scholarly interpretations of specific substantive fields of law.

MLAW 377 The Legal Profession (3) Restriction: Must be in the Law and Society Minor. Designed to introduce students to a variety of legal fields. The course is designed to combine social science literature about the legal profession with real world experiences with lawyers and legal workers. It will address questions about law as a profession, field of advocacy and as a business.

MLAW 388 Law and Society Internship (1-4) Repeatable to 7 credits. Participation in the Law and Society Internship (LASI) offers students the opportunity to enhance their education through practical skill building in the realm of law-related professionals.

MLAW 404 Law & Society Capstone: Implications of Technology on Law & Society (3) Restriction: Student must be enrolled in the Law and Society minor. An exploration of the implications of technology on law and society from a variety of perspectives.Significant issues will be taken from contemporary scholarship and court cases.

MLSC -- MD Language Science Ctr

MLSC 308 PULSAR Language Science Research Seminar (1) Restriction: Must be in PULSAR program or have permission of the instructor. Repeatable to 4 credits. Credit only granted for: BSOS338P or MLSC308. Formerly: BSOS388P. Research seminar for students in the PULSAR language science program. Weekly presentations and discussions on diverse topics in language science research, as well as on developing research skills.

MUED -- Music Education

MUED 155 Fundamentals for the Classroom Teacher (3) Restriction: Must be in one of the following programs (Early Childhood Education; Elementary Education) ; or must be a Pre-Elementary Education major; or must be a Pre-Early Childhood Education major. The fundamentals of music theory and practice, related to the needs of the classroom and the kindergarten teacher.

MUED 186 Pre-professional Experiences I (2) Restriction: Must be in Music Education program. Additional information: Fulfills the College of Arts and Humanities requirement for ARHU158. An orientation into the role of the music teacher in the school and community. On-site school visits at elementary, middle and high school levels form the basis for discussion and exploration of all facets of the music education profession.

MUED 187 Pre-Professional Experiences II (1) Prerequisite: MUED186. Restriction: Must be in Music Education program. Regular on-site school visitation at elementary, middle and high school levels arranged to expand student understandings and reflections of music instruction in classroom settings.

MUED 213 String Technique and Pedagogy I (2) Restriction: Must be in Music Education program. A study of violin, viola, cello and bass technique and pedagogy; beginning level. Emphasizes group process playing and teaching.

MUED 214 String Technique and Pedagogy II (2) Restriction: Must be a major in Music Education-instrumental option. A study in violin, viola, cello and bass technique and pedagogy; intermediate to advanced level. Emphasizes group process playing and teaching, chamber music and individual technique development.

MUED 215 Woodwind Technique and Pedagogy (2) Restriction: Permission of ARHU-School of Music department. Playing experience on instruments of the woodwind family. Historical and acoustical background. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 216 Percussion Technique and Pedagogy (2) Restriction: Must be in Music Education program. Playing experience on percussion instruments. Historical and acoustical background. Scoring for percussion. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 217 Brass Instrument Technique and Pedagogy (2) Restriction: Must be in Music Education program. Playing experience on instruments of the brass family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

MUED 222 Classroom Instruments Technique and Pedagogy (2) Prerequisite: MUED187 and MUED186. Restriction: Must be in Music Education program. An introduction to the fundamentals of classroom instruments technique and pedagogy for the choral and general teacher.

MUED 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUED 311 Teaching Elementary Instrumental Music I (2) Prerequisite: MUED187. Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to teach fundamental musical skills at the elementary level.

MUED 320 Teaching Secondary Instrumental Music I (2) Prerequisite: MUED187. Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to extend secondary-level musical skill through planned instruction and development of teaching materials.

MUED 333 Classroom Vocal Pedagogy (2) Prerequisite: MUED187 and MUED186. Restriction: Must be in Music Education program. An introduction to the fundamentals of group vocal pedagogy for the choral and general classroom teacher, including the teaching of posture, breathing, resonance, registration, articulation and foreign language diction as appropriate to needs of the child or adolescent singer in K-12 classroom settings.

MUED 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUED 386 Experiential Learning (3-6) Prerequisite: Must have learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

MUED 411 Teaching Elementary Instrumental Music II (2) Prerequisite: MUED320 and MUED311. Corequisite: MUED489. Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary curricular-oriented, research-based, comprehensive elementary instrumental music program.

MUED 420 Teaching Secondary Instrumental Music II (2) Prerequisite: MUED320 and MUED311. Corequisite: MUED489. Restriction: Must be in Music Education program. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary, curricular-oriented, research-based, comprehensive secondary instrumental program.

MUED 471 Teaching General Music (2) Prerequisite: MUED222 and MUED333. Corequisite: MUED489. Restriction: Must be in Music Education program. An examination of children's musical development via model teaching experiences. Students in this course will be involved in learning appropriate techniques and materials used to plan, deliver, and assess musical instruction effectively in

general music settings for K-12 students. The focus is on how to implement a sequential, balanced, and comprehensive music curriculum (i.e., artistic processes: creating, performing, and responding) that emphasizes opportunities for students to construct their own learning.

MUED 472 Teaching Choral Music (2) Prerequisite: MUED471. Corequisite: MUED489. Restriction: Must be in Music Education program. Preparation for teaching choral classes through the integration of conducting technique, vocal pedagogy, knowledge of repertoire, and the application of appropriate instructional strategies in the context of peer teaching and field experience assignments.

MUED 473 Teaching General Music for Instrumentalists (2) Prerequisite: MUED311; and MUED320. Restriction: Must be in Music Education program. Introduction to current trends, materials and approaches in general music instruction.

MUED 474 Field Experiences: Pre-Student Teaching (1) Prerequisite: MUED420 and MUED411; or (MUED472 and MUED471). Restriction: Permission of ARHU-School of Music department; and senior standing. Field experiences to fulfill teaching requirements in K-12 music teacher education program.

MUED 484 Student Teaching in Elementary School: Music (6) Corequisite: MUED494. Restriction: Permission of ARHU-School of Music department; and must be in Music Education program. Fulfills elementary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

MUED 489 Field Experiences (1) Restriction: Permission of ARHU-School of Music department; and must be in Music Education program. Repeatable to 6 credits. Series of field experiences in K-12 settings.

MUED 494 Student Teaching in Secondary School: Music (6) Corequisite: MUED484. Restriction: Permission of ARHU-School of Music department; and must be in Music Education program. Fulfill secondary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

MUED 499 Workshops, Clinics, Institutes (1-3) Repeatable to 6 credits if content differs. Innovative and experimental dimensions of music education offered to meet the needs of music teachers and music supervisors allowing students to individualize their programs.

MUET -- Ethnomusicology

MUET 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUET 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSC -- School of Music

MUSC 001 MUSP Course Evaluation ()

MUSC 099 Performance Attendance () Performance attendance laboratory for undergraduate music majors.

MUSC 100 Beginning Class Voice (2) A laboratory course involving a variety of voices and vocal problems. Principles of correct breathing as applied to singing; fundamentals of tone production and diction. Repertoire of folk songs and songs of the Classical and Romantic periods. Development of students' voices.

MUSC 102 Class Piano (2) Functional piano training for beginners. Development of techniques for school and community playing. Basic piano techniques; chord, arpeggio and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition and playing by ear.

MUSC 103 Beginning Class Piano II (2) Prerequisite: MUSC102; or permission of ARHU-School of Music department. Functional piano training for beginners. Development of techniques useful for school and community playing. Basic piano techniques; chord, arpeggio, and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition, and playing by ear. MUSC 103 is a continuation of MUSC 102; elementary repertoire is begun.

MUSC 106 Beginning Classical Guitar (2) Introduction to classical guitar notation, technique, literature and performance. No previous musical experience required.

MUSC 123 Movement for Singers (1) Prerequisite: Permission of ARHU-School of Music department. Systematic exercises, improvisations and dances in conjunction with artistic vocal expression. Performance and critique of stage deportment, gestures and recital techniques.

MUSC 126 Vocal Diction: English and Latin (1) Prerequisite: Permission of ARHU-School of Music department. Augmentation of private voice study. Phonetics and diction for singers of English and Latin vocal literature.

MUSC 127 Vocal Diction: Italian (1) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within the ARHU-School of Music department. Augmentation of private voice study. Phonetics and diction for singers of Italian vocal literature.

MUSC 128 Sight Reading For Pianists (2) Repeatable to 4 credits. A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.

MUSC 129 Ensemble (1) Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 130 Survey of Music Literature (3) Restriction: Must not be in any of the following programs (Music (Professional Program); Music Education). A study of the principles upon which music is based, and an introduction to the musical repertory performed in America today.

MUSC 140 Music Fundamentals I (3) Restriction: Must not be in any of the following programs (Music (Professional Program); Music Education). Introductory theory course. Notation, scales, intervals, triads, rhythm, form and basic aural skills.

MUSC 150 Theory of Music I (3) Prerequisite: Departmental audition and entrance examination. Restriction: Must be in one of the following programs (Music (Liberal Arts Program); Music (Jazz Performance Option); Music (Winds & Percussions Performance Option); Music (Voice Performance

Option); Music Composition; Music (Professional Program); Music (Piano Performance Option); Music Performance-Winds and Percussion; Music Theory and Composition; Music Performance-Piano; Music Performance-Jazz Studies; Music Performance-Voice; Music Performance-Strings; Music (Strings Performance Option)). A study of basic concepts and skills in tonal melody and harmony through analysis and composition.

MUSC 151 Theory of Music II (3) Prerequisite: Minimum grade of C- in MUSC150. A continuation of MUSC150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 200 Intermediate Class Voice I (2) Prerequisite: MUSC100; or must have equivalent vocal training. Continuation of MUSC100, with more advanced repertory for solo voice and small ensembles. A special section for music education majors will include the study of methods and materials for teaching class voice.

MUSC 202 Intermediate Class Piano I (2) Prerequisite: MUSC103; or must have equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC103. Transposition, modulation and sight reading; methods of teaching functional piano.

MUSC 203 Intermediate Class Piano II (2) Prerequisite: MUSC202; or must have equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC202. Transposition, modulation and sight reading; methods of teaching functional piano. Development of style in playing accompaniments and in playing for community singing. More advanced repertory.

MUSC 204 Popular Music in Black America (3) Traces black popular music in the U.S. with a special focus on spirituals, ragtime, the blues, early jazz, R&B, Motown, funk, soul, and rap. Examines how these styles have been borrowed by the American music industry.

MUSC 205 History of Popular Music, 1950-Present (3) A historical survey of rock music (blues, rock, soul, metal, rap, etc.) from circa 1950 to the present, with emphasis on popular music as music and popular music as social history.

MUSC 210 The Impact of Music on Life (3) Credit only granted for: MUET210 or MUSC210. Formerly: MUET210. Music as a part of culture. Materials drawn from traditions throughout the globe to illustrate issues of historical and contemporary significance, including the impact of race, class and gender on the study of music.

MUSC 215 World Popular Musics and Identity (3) Credit only granted for: MUET200 or MUSC215. Formerly: MUET200. Focus on popular musics in different cultures with an emphasis on cross-cultural comparisons and analysis of how musics and identity intersect.

MUSC 220 Selected Musical Cultures of the World (3) Credit only granted for: MUET220 or MUSC220. Formerly: MUET220. A survey of selected musical cultures of the world, such as India, Japan, China, Indonesia, West Africa, Eastern Europe and the Near East.

MUSC 226 Vocal Diction: French (1) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Augmentation of private voice study. Phonetics and diction for singers of French vocal literature.

MUSC 227 Vocal Diction: German (1) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Augmentation of private study. Phonetics and diction for singers of German vocal literature.

MUSC 228 Introduction to Accompanying for Pianists (2) Prerequisite: Permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Repeatable to 10 credits. A course to introduce the piano major to accompanying at an intermediate level of difficulty. Class instruction will center on rehearsal and coaching geared toward performance, and will be supplemented by experience working as an accompanist in voice classes or applied studios.

MUSC 229 Ensemble (1) Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 248 Selected Topics in Music (1-3) Prerequisite: Permission of ARHU-School of Music department. Repeatable to 6 credits if content differs. Designed to allow a student of theory or music history to pursue a specialized topic or project under the supervision of a faculty member.

MUSC 250 Advanced Theory of Music I (4) Prerequisite: Minimum grade of C- in MUSC151. A continuation of MUSC 151, with further study of chromatic and modulatory techniques of the nineteenth century. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 251 Advanced Theory of Music II (4) Prerequisite: Minimum grade of C- in MUSC250. A continuation of MUSC250, concentrating on late nineteenth-century chromatic harmony and an introduction to twentieth-century melody and harmony. Emphasis on sight singing, ear training, analysis and compositional skills.

MUSC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSC 310 Music History I (3) Prerequisite: MUSC151; and permission of ARHU-School of Music department. Credit only granted for: MUSC310 or MUSC331. Formerly: MUSC331. A historical study of Western music from Antiquity to 1600.

MUSC 320 Music History II (3) Prerequisite: MUSC310; and permission of ARHU-School of Music department. Credit only granted for: MUSC230 or MUSC320. Formerly: MUSC230. A historical study of Western music from 1600 to 1800.

MUSC 328 Introduction to Chamber Music for Pianists (2) Prerequisite: Permission of ARHU-School of Music department. Repeatable to 10 credits. A course to introduce the piano major to chamber music at a moderately difficult level. Class instruction will center on actual rehearsal and coaching geared toward performance, and will be supplemented by further experience in applied instrumental studios.

MUSC 329 Ensemble (1) Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC129, the student will elect MUSC229 for two additional semesters and MUSC329 thereafter.

MUSC 330 Music History III (3) Prerequisite: MUSC320; and permission of ARHU-School of Music department. A historical study of Western music from 1800 to present.

MUSC 339 Honors in Music (3) Prerequisite: Permission of ARHU-School of Music department. Corequisite: MUSC349. Repeatable to 6 credits. The production of one or more recitals or lecture-recitals; one or more compositions; or one or more honors theses in addition to regular degree requirements. Two semesters required.

MUSC 349 Honors Seminar in Music (1) Corequisite: MUSC339. Repeatable to 2 credits. Group discussion of projects undertaken in MUSC339. Two semesters required.

MUSC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSC 379 Opera Workshop (1) Restriction: Must complete a departmental audition. Repeatable to 4 credits. Open to music and non-music majors (by audition). Operatic production and performance, performance techniques and coaching, stage direction, set design, costume design and make-up. Repertory will include smaller operatic works, excerpts or scenes.

MUSC 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Music department. Restriction: Junior standing or higher.

MUSC 388 Music Internship (3) Prerequisite: Permission of ARHU-School of Music department. Corequisite: MUSC389. Repeatable to 6 credits. Pre-professional field work in music.

MUSC 389 Music Internship Analysis (1) Corequisite: MUSC388. Repeatable to 2 credits. Documentation and evaluation of field work experience.

MUSC 400 Music Pedagogy (3) Prerequisite: MUSP315; and permission of ARHU-School of Music department. Conference course. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 420 Introduction to Ethnomusicology (3) Prerequisite: MUSC210 and MUSC130; or permission of ARHU-School of Music department. Restriction: Junior standing or higher. Study of principal concepts and methods in ethnomusicology, covering history of field, linguistics and anthropology, music in various settings, musical cognition and ethnography of performance.

MUSC 428 Repertoire Coaching of Vocal or Chamber Music (2) Prerequisite: Must have completed or be concurrently enrolled in MUSC328. A course for piano students who wish to go further than the work offered in MUSC128, MUSC228 and MUSC328 by becoming specialists in the areas of vocal coaching or chamber music coaching. Elements of pedagogy, conducting and responsible artistic decision-making for the entire musical production.

MUSC 430 The American Musical Experience: North America (3) Prerequisite: MUSC210 or MUSC130. Restriction: Junior standing or higher. Many musical styles found in North America portray the ideas and belief that characterize our diverse society. Specific problems and issues in American society examined through the American musical experience.

MUSC 435 Music of North America (3) Prerequisite: Permission of ARHU-School of Music department. A survey of North American music from Colonial times to present.

MUSC 436 Jazz: Then and Now (3) Major styles and influential artists of the past 75 years of jazz.

MUSC 438 Area Studies in Ethnomusicology (3) Repeatable to 9 credits if content differs. Advanced study of musics in selected parts of the world.

MUSC 439 Collegium Musicum (1) Prerequisite: Permission of ARHU-School of Music department. Repeatable to 5 credits. Open to undergraduates and graduates, music majors and non-majors. Procurement, edition and performance of music not belonging to a standard repertory: early music, compositions for unusual performing media, works which demand reconstruction of their original circumstances of performance. Outcome of a semester's work may be one or more performances for the public.

MUSC 443 Solo Vocal Literature (3) Prerequisite: MUSC330 and MUSC331; or students who have taken courses with comparable content may contact the department. The study of solo vocal literature from the Baroque Cantata to the Art Song of the present. The Lied, Melodie, vocal chamber music and the orchestral song are examined.

MUSC 444 Wind and Percussion Literature (1) Prerequisite: Permission of ARHU-School of Music department. Corequisite: MUSP420 or MUSP419. Recital program notes and written projects in wind or percussion literature.

MUSC 445 Survey of the Opera (3) Prerequisite: MUSC330 and MUSC331; or students who have taken courses with comparable content may contact the department. A study of the music, librettos and composers of the standard operas.

MUSC 446 String Literature (1) Prerequisite: MUSP316; and permission of ARHU-School of Music department. Recital program notes and written projects in string literature.

MUSC 448 Selected Topics in Music (1-3) Prerequisite: Permission of ARHU-School of Music department. Repeatable to 6 credits if content differs.

MUSC 450 Musical Form (3) Prerequisite: MUSC251. A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music. Reading and analysis of scores exemplifying the musical forms.

MUSC 451 Analysis of Music (3) Prerequisite: MUSC450; or permission of instructor. A course in the analysis of music. Discussion of individual works, with emphasis on their unique characteristics and on the relation of analysis to performance.

MUSC 453 Jazz Improvisation I (3) Prerequisite: MUSC251; or students who have taken courses with comparable content may contact the department. And permission of ARHU-School of Music department. Credit only granted for: MUSC345 or MUSC453. Formerly: MUSC345. Jazz theory, notational conventions, improvisation techniques, reading and analysis of music, and performance in small combo format.

MUSC 454 Jazz Improvisation II (3) Prerequisite: MUSC453; or students who have taken courses with comparable content may contact the department. And permission of ARHU-School of Music department. Credit only granted for: MUSC346 or MUSC454. Formerly: MUSC346. Continuation of MUSC453 including scoring and transcription.

MUSC 455 Theory of Jazz (3) Prerequisite: MUSC250; or permission of ARHU-School of Music department. Restriction: Must be in a major within ARHU-School of Music department. Analysis of jazz

harmony, with emphasis on principles of substitution, reharmonization, and syntax. Topics may also include chord/scale relationships, phrasing and articulation, notation, and introductory arranging concepts such as orchestration and form.

MUSC 456 Jazz Arranging (3) Prerequisite: MUSC455; and permission of ARHU-School of Music department. Credit only granted for: MUSC448N or MUSC456. Formerly: MUSC448N. A comprehensive approach to jazz arranging. Topics to include chord scale theory, voicing techniques, part and score layout, and formal construction of an arrangement.

MUSC 460 Tonal Counterpoint I (3) Prerequisite: MUSC251; or permission of ARHU-School of Music department. A course in Eighteenth-Century contrapuntal techniques, analysis and original composition of two-voice dances, preludes, and inventions. Includes an introduction to the study of fugue and canon.

MUSC 463 Applications in Music Technology (3) A hands-on study of computer hardware and software that makes use of the MIDI (Musical Instrument Digital Interface) specification. This protocol allows computers, synthesizers and various other devices to send and receive information about musical performance, notation and sound. The course focuses on two of the most frequently used applications on MIDI -- sequencing and music notation. Also included is an introduction to digital audio. No previous experience with computers is required. Ability to read music on a grand staff (treble and bass clef) is recommended.

MUSC 464 The Theories of Heinrich Schenker (3) Prerequisite: MUSC251 and MUSC450; and permission of ARHU-School of Music department. Restriction: Must not have completed MUSC651. Credit only granted for: MUSC464 or MUSC651. An advanced analysis course in tonal music with specific emphasis on the theories of the early 20th century theorist Heinrich Schenker. Specific analyses of music by Bach, Mozart, Haydn, Beethoven, Chopin, and Brahms.

MUSC 467 Piano Pedagogy I (3) Prerequisite: Permission of ARHU-School of Music department. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 468 Piano Pedagogy II (3) Prerequisite: MUSC467; and permission of ARHU-School of Music department. Repeatable to 6 credits. Application of the studies begun in MUSC467 to the actual lesson situation. Evaluation of results.

MUSC 469 Orchestral Excerpts for String Players (1) Restriction: Permission of ARHU-School of Music department. Repeatable to 6 credits if content differs. Credit only granted for: MUSC469, MUSC448B, MUSC448Q, MUSC448V, or MUSC448X. Formerly: MUSC448B, MUSC448Q, MUSC448V, and MUSC448X. In-depth study of the orchestral excerpts required for professional orchestra auditions.

MUSC 470 Harmonic and Contrapuntal Practices of the Twentieth Century (3) Prerequisite: MUSC251; or students who have taken courses with comparable content may contact the department. And permission of ARHU-School of Music department. A theoretical and analytical study of twentieth century materials.

MUSC 471 Contemporary Compositional Techniques (3) Prerequisite: MUSC470; and permission of ARHU-School of Music department. Continuation of MUSC470, with emphasis on the analysis of individual works written since 1945.

MUSC 481 Music in the Renaissance (3) Survey of western music from 1450 to 1600.

MUSC 483 Music in the Classic Era (3) Survey of western music from 1750 to 1820.

MUSC 484 Music in the Romantic Era (3) Survey of western music from 1820 to 1900.

MUSC 485 Music in the 20th Century (3) Prerequisite: Permission of ARHU-School of Music department. Survey of western music from 1900 to the present.

MUSC 486 Orchestration I (3) Prerequisite: MUSC251; and permission of ARHU-School of Music department. A study of the ranges, musical functions and technical characteristics of the instruments and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.

MUSC 490 Conducting (2) Prerequisite: MUSC251. Vocal and instrumental baton techniques.

MUSC 491 Conducting II (2) Prerequisite: MUSC490; or students who have taken courses with comparable content may contact the department. Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.

MUSC 492 Keyboard Music I (3) Prerequisite: Permission of ARHU-School of Music department. The history and literature of harpsichord and solo piano music from its beginning to the romantic period. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 493 Keyboard Music II (3) Prerequisite: MUSC492; and permission of ARHU-School of Music department. The history and literature of harpsichord and solo piano music from the Romantic period to the present. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 499 Independent Studies (1-3) Prerequisite: Permission of ARHU-School of Music department. Additional information: May be repeated once for credit. Independent research on a topic chosen in consultation with the instructor, which may culminate in a paper or appropriate project.

MUSP -- Music Performance

Undergraduate Music Performance Courses are available in three series: Minor Series: 2-credits each course. Prerequisite: permission of department chairperson. Limited to music majors studying a secondary instrument and to non-music majors. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 102. Transfer students are evaluated for higher placement after one semester of study. One-half hour private lesson per week plus assigned independent practice. **MUSP 102, 103 Freshman Courses. MUSP 202, 203 Sophomore Courses. MUSP 302, 303 Junior Courses. MUSP 402, 403 Senior Courses. Principal Series: 2-4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in music programs other than performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 109. Transfer students are evaluated for higher placement after one**

semester of study. One-hour private lesson per week plus assigned independent practice. Courses 109, 208, and 409 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 109, 110, Freshman Courses. MUSP 207, 208 Sophomore Courses. MUSP 305, 306 Junior Courses. MUSP 409, 410 Senior Courses. Recital required in MUSP 410. Major Series: 2-4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 119, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 119, 120 Freshman Courses. MUSP 217, 218 Sophomore Courses. MUSP 315, 316 Junior Courses. MUSP 419, 420 Senior Courses. Recital required in MUSP 420. Instrument designation: each student taking a music performance course must indicate the instrument chosen by adding a suffix to the proper course number, such as: MUSP 102A music performance: A--piano; B--voice; C--violin; D--viola; E--cello; F--bass; G--flute; H--oboe; I--clarinet; J--bassoon; K--saxophone; L--horn; M--trumpet; N--trombone; O--tuba; P--euphonium; Q--percussion; T--composition; U--world instruments; V--harp; W--electronic composition; X--hist inst - keyboard; Y--hist inst - strings; Z--hist inst - winds.

MUSP 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSP 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

MUSP 386 Experiential Learning (3-6) Prerequisite: Must have Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Restriction: Junior standing or higher.

NAVY -- Navy

NAVY 100 Introduction to Naval Science (3) Introduction to the naval profession and concepts of sea power. Major topics explored are the mission, strategy, organization, and descriptions of the U.S. Navy and Marine Corps. Students will gain a basic understanding of warfighting capabilities, required leadership skills, training and education, and the duties and responsibilities of a U.S. Navy and Marine Corps Junior Officer. The student will learn Naval courtesy and customs, military justice, and nomenclature as well as the professional competencies required to become a naval officer.

NAVY 101 Sea Power and Maritime Affaris (3) Introduces the student to the key themes of naval and maritime history. Curriculum presents an analysis through lectures, reading, and student discussion of the relationship of sea power to American history. Classical concepts and contemporary employment of sea power are examined by viewing historic and current naval and maritime developments.

NAVY 108 Naval Science Leadership Lab (1) Corequisite: Corequisite: 1 course from NAVY100-402 course range. Restriction: Permission of UGST-Navy ROTC. Repeatable to 8 credits. Introduces the

student to a variety of instructional sessions and/or activities that will develop the leadership component of the Naval ROTC program. The Naval Science leadership lab may include, but not be limited to, close-order drill, physical fitness training, ceremonial functions, Department of the Navy policy, guest lecturers, general military training (GMT), Anti-Terrorism Force Protection (ATFP), traffic safety, nutrition, stress management, prevention of sexual harassment, and operations security.

NAVY 200 Leadership and Management (3) Restriction: Permission of UGST-Navy ROTC. Additional information: Priority enrollment will be given to students enrolled in the NROTC program. Introductory course designed to familiarize students with the theories, processes, and behaviors that enable effective leadership and managerial competence. Students will engage in analytical discussions, review leadership development and education, and Navy/Marine Corps-based case study discussions in order to develop their understanding of personal strengths, values and growth opportunities in the context of team, group and organizational leadership.

NAVY 201 Navigation (3) Restriction: Permission of UGST-Navy ROTC. Additional information: Priority enrollment will be given to students enrolled in the University of Maryland NROTC program. Introduces the student to a broad yet thorough education in basic surface ship navigation. Curriculum presents an overview of tools of the modern naval watch officer, and topics include celestial navigation, rules of the nautical road, piloting, practical chartwork, tides, instruments, publications, records, and electronic navigation systems. Instructional sessions and/or activities develop the maritime proficiency core competency of the Naval Reserve Officer Training Corps (NROTC) program.

NAVY 300 Naval Ship Systems I (Engineering) (3) Recommended: MATH140 and MATH141. Restriction: Permission of UGST-Navy ROTC. Additional information: Priority enrollment will be given to students enrolled in the NROTC program. Introduces the student to a comprehensive fundamental understanding of United States naval engineering principles and systems. Topics include thermodynamics, incompressible fluid flow, electrical theory, hydraulics and pneumatics, power train components, fluid/lube oil systems, desalination, fundamentals of nuclear power, propulsion systems (internal combustion, gas turbines, and steam), electrical distribution, ship stability and control and damage control. Students will also examine case studies to apply and analyze course topics within naval ships systems contexts.

NAVY 301 Naval Ship Systems II (Weapons) (3) Recommended: MATH140, MATH141, and PHYS161. Restriction: Permission of UGST-Navy ROTC. Additional information: Priority enrollment will be given to students enrolled in the NROTC program. Introduces the student to a comprehensive fundamental understanding of United States naval weaponry. Includes theory and employment of weapons systems, including the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. Radar and sonar systems and major weapon types, including capabilities and limitations. Facets of command, control, and communications as means of weapons system integration. Curriculum presents an in-depth review of surface, sub-surface, aviation, and Marine Corps weapons and platforms.

NAVY 302 Evolution of Warfare (3) Recommended: NAVY100 and NAVY101. Restriction: Permission of UGST-Navy ROTC. Additional information: Priority enrollment will be given to students in the NROTC program. Traces the development of warfare, from earliest recorded history to the present, with focus on the impact of major military theorists, strategists, tacticians, and technological developments. The student acquires an intermediate sense of strategy and develops an understanding of military alternatives and the impact of historical precedent on military thought and actions.

NAVY 400 Naval Operations and Seamanship (3) Recommended: NAVY201. Restriction: Permission of UGST-Navy ROTC. Additional information: Priority enrollment will be given to students enrolled in the NROTC program. Capstone course for senior NROTC Navy-option midshipmen in advanced navigation, communications, naval operations, and naval warfare. Students learn through simulation in a computer classroom known as the Maritime Skills Simulator (MSS), in addition to lectures, discussions, and qualitative and quantitative tests/examinations. Students will engage in discussions regarding the moral and ethical responsibilities or military leaders, as well as the essential attributes of character required for effective leadership.

NAVY 401 Leadership and Ethics (3) Recommended: NAVY200. Restriction: Permission of UGST-Navy ROTC. Additional information: Priority enrollment will be given to students enrolled in the NROTC program. Integrates an intellectual exploration of Western moral traditions and ethical philosophy with military leadership, core values, the Uniform Code of Military Justice, and Navy regulations. The course provides students with a basic understanding of major moral traditions including Relativism, Utilitarianism, Kantian Ethics, Natural Law Theory, Divine Command Theory, and Virtue Ethics.

NAVY 402 Amphibious Warfare (3) Recommended: NAVY100, NAVY101, and NAVY302. Restriction: Permission of UGST-Navy ROTC. Additional information: Priority in enrollment will be given to students in the NROTC program. Introduction to foundational concepts and history of amphibious warfare, from the classical period to the present day. Emphasis is placed on analytical study and critical thought rather than memorization of historical facts. Students will trace the evolution of amphibious warfare through analysis of case studies using amphibious and maneuver doctrine as a framework. By the end of this course, students will comprehend modern employment concepts and challenges relating to the use of amphibious forces.

NFSC -- Nutrition and Food Science

NFSC 100 Elements of Nutrition (3) Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

NFSC 103 Nutrition and Sports Performance (3) Nutrition and Sports Performance would give students a brief overview of positive health-related outcomes of a physically active lifestyle. Students would design a fitness regimen and be able to describe when and how glycogen, blood glucose, fat, and protein are used to meet energy needs during different types of physical activity. They would be able to differentiate between anaerobic and aerobic use of glucose, and identify advantages and disadvantages of each. This course would outline how to estimate and athlete's calorie need and discuss the general principles for meeting overall nutrient requirements in the training diet. The problems associated with rapid weight loss by dehydration and the importance of water and/or sports drinks during exercise would be examined. An understanding of the importance of staying well-nourished with carbohydrate, protein, and various vitamins and minerals before, during, and after training would be discussed.

NFSC 112 Food: Science and Technology (3) Introduction to the realm of food science, food technology and food processing. An overview of the largest industry in the U.S. with emphasis on the science of food and the technology of food preservation from harvest through processing and packaging to distribution and consumer utilization.

NFSC 220 Diet: Is it a cause or a solution (3) If diet is a very straightforward topic; then why and how does this simple matter result in complicated health problems? Diet can provide a simple solution to numerous health issues. So, why do many people fail to follow this seemingly simple solution and still

suffer from obesity and other diet-related diseases? Diet is a topic that most people know but few people understand. In addition, diet has become one of the most important lenses for looking at a variety of social, economic, and cultural issues. Since the concept of diet is continuum and has multifaceted aspects, we need to understand it in broad and multidisciplinary perspectives including social, cultural and economic aspects.

NFSC 315 Nutrition During the Life Cycle (3) Prerequisite: NFSC100. Formerly: NUTR315. A study of how development throughout life, including prenatal development, pregnancy, lactation, adolescence and aging, alter nutrient requirements. Students will apply this knowledge to the dietary needs and food choices of these different groups.

NFSC 350 Foodservice Operations (5) Prerequisite: BSCI223 and BMGT364; and permission of AGNR-Nutrition and Food Science department. Restriction: Must be in Nutrition and Food Science: Dietetics program. Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

NFSC 380 Methods of Nutritional Assessment (3) Prerequisite: NFSC315 and BCHM461; and permission of AGNR-Nutrition and Food Science department. Restriction: Must be in Nutrition and Food Science: Food Science program. Methods of assessing human nutritional status of populations and individuals. These methods include dietary, anthropometric, clinical evaluations and biochemical measurements.

NFSC 386 Experiential Learning (3-6) Prerequisite: Permission of AGNR-Nutrition and Food Science department. Restriction: Junior standing or higher. Formerly: FDSC386 and NUTR386.

NFSC 388 Honors Thesis Research (3-6) Restriction: Must be admitted to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

NFSC 398 Seminar (1) Formerly: FDSC398. Presentation and discussion of current literature and research in food science.

NFSC 399 Special Problems in Food Science (1-3) Formerly: FDSC399. Designed for advanced undergraduates. Specific problems in food science will be assigned.

NFSC 410 Nutritional Genomics (3) Prerequisite: NFSC440; or permission of AGNR-Nutrition and Food Science department. The emerging discipline of nutritional genomics, also known as nutrigenomics, is the study of effects of diet on the activity of an individual's genes and health, and the study of how different genetic variations affect nutrient metabolism. This course is designed to acquaint the students with current concepts, knowledge and strategies for understanding nutritional genomics.

NFSC 412 Food Processing Technology (4) Prerequisite: CHEM241, CHEM242, NFSC431, NFSC414, and NFSC434. Corequisite: NFSC421 and NFSC423. Recommended: MATH120; or completion of MATH220 recommended. Provides in-depth study of the major industrial modes of food preservation. It integrates aspects of the biology, microbiology, biochemistry and engineering disciplines as they relate to food processing technology and food science.

NFSC 414 Mechanics of Food Processing (4) Prerequisite: PHYS121. Credit only granted for: ENBE414 or NFSC414. Formerly: ENBE414. Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

NFSC 421 Food Chemistry (3) Prerequisite: BCHM461. Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.

NFSC 422 Food Product Research and Development (3) Restriction: Senior standing; and must be in a major within AGNR-Nutrition and Food Science department; and permission of AGNR-Nutrition and Food Science department. Formerly: FDSC422. A capstone course for FDSC majors. A study of the research and development of new food products. Application of food technology, engineering, safety and packaging are integrated by teams of students to develop a new food product from concept to pilot plant scale-up. Students will travel to nearby food processing plants on two to four Saturdays during the semester.

NFSC 423 Food Chemistry Laboratory (3) Prerequisite: Must have completed or be concurrently enrolled in NFSC421. Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in NFSC421.

NFSC 425 International Nutrition (3) Prerequisite: Must have completed one course in basic nutrition. Nutritional status of world population; consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.

NFSC 430 Food Microbiology (3) Prerequisite: BSCI223; or permission of instructor. Credit only granted for: ANSC430 or NFSC430. Formerly: FDSC430. A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.

NFSC 431 Food Quality Control (4) Definition and organization of the quality control function in the food industry; preparation of specifications; statistical methods for acceptance sampling; in-plant and processed product inspection. Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness and their integration into grades and standards of quality. Statistical Process Control (SPC).

NFSC 434 Food Microbiology Laboratory (3) Prerequisite: Must have completed or be concurrently enrolled in NFSC430. Credit only granted for: NFSC434 or ANSC434. Formerly: FDSC434. A study of techniques and procedures used in the microbiological examination of foods.

NFSC 440 Advanced Human Nutrition (4) Prerequisite: BCHM462, BSCI440, and NFSC100; and permission of AGNR-Nutrition and Food Science department. A critical study of physiologic, molecular and metabolic influences on utilization of carbohydrates, lipids, proteins, vitamins, macro-and micro-minerals, and nonnutritive components of food. Interactions of these nutrients and food components will be examined relative to maintaining health.

NFSC 450 Food and Nutrient Analysis (3) Prerequisite: BCHM461 and NFSC100. Formerly: NUTR450. Methods and practices of the analysis of foods and nutrients. An overview of the principles and basic mechanisms used in many of the analytical procedures commonly used in food and nutrition

research. Emphasis will be placed on hands-on development of skills necessary to complete each analytical procedure; and on the accurate and concise description of the methodology and results from their application and on the regulations governing food analysis for nutritional labeling.

NFSC 460 Medical Nutrition Therapy (4) Prerequisite: NFSC380 and NFSC440; and permission of AGNR-Nutrition and Food Science department. Formerly: NUTR460. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

NFSC 470 Community Nutrition (3) Prerequisite: NFSC315; and permission of AGNR-Nutrition and Food Science department. Formerly: NUTR470. Perspectives underlying the practice of nutrition services in community settings. Assessment of needs, program planning and evaluation. Programs and strategies to meet nutrition needs outside the acute care setting, such as nutrition education and food assistance. National nutrition policy and federal initiatives in nutrition will be examined. Students will be required to travel to local community nutrition sites during the semester.

NFSC 490 Special Problems in Nutrition (2-3) Prerequisite: NFSC440; and permission of AGNR-Nutrition and Food Science department. Individually selected problems in the area of human nutrition.

NFSC 491 Issues and Problems in Dietetics (3) Prerequisite: NFSC350; and permission of AGNR-Nutrition and Food Science department. Corequisite: NFSC460. Restriction: Senior standing or higher; and must be in Nutrition and Food Science: Dietetics program. A capstone course for dietetics majors. Students will integrate knowledge and theory of nutrition, food, management, psychology, and social behaviors necessary to support quality dietetic practice. Working in teams, students will participate in case studies, simulated situations and community projects. Individuals and groups will present cases as well as papers on published research.

NFSC 498 Selected Topics (1-3) Restriction: Permission of AGNR-Nutrition and Food Science department. Repeatable to 6 credits if content differs. Selected current aspects of food.

PEER -- Health Center

PEER 311 Peer Education Mental Health & Wellness (3) Prerequisite: Students must complete an interview before enrolling in this course. Restriction: Permission of instructor; and minimum cumulative GPA of 2.5. Credit only granted for: HLTH381 or PEER311. Formerly: HLTH 381. Additional information: Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required. Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about issues surrounding stress management, mental illness, appropriate on/off campus resources, stigma, body image, helping a friend in distress, and other issues related to mental health and wellness, including bystander intervention. Programming is done in classroom settings, residence halls, and at tables during special events.

PEER 312 Peer Education: Preventing Power-Based Violence (3) Prerequisite: Students must complete an interview before enrolling in this course. Restriction: Permission of instructor; and minimum cumulative GPA of 2.5. Credit only granted for: HLTH382 or PEER312. Formerly: HLTH382. Additional information: Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required. Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about

the complex dynamics surrounding issues of power-based personal violence. This includes: sexual assault, relationship violence, stalking, bystander intervention, consent, and rape culture. Students fully learn the on and off-campus resources for victim/survivors. Programming is done in classroom settings, residence halls, Greek life spaces, and at tables during special events.

PEER 313 Peer Education: Alcohol and Other Drugs Education (3) Prerequisite: Students must complete an interview before enrolling in this course. Restriction: Permission of instructor; and minimum cumulative GPA of 2.5. Credit only granted for: HLTH380 or PEER313. Formerly: HLTH380. Additional information: Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required. Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about issues surrounding substance use, including (but not limited to) alcohol, marijuana, and various other drugs, providing information about campus services for those with substance use related issues, and educating students about other topics related to harm reduction strategies and promoting students' overall well-being, including bystander intervention. Programming is done in classroom settings, residence halls, and at tables during special events.

PEER 314 Peer Education: Sexual Health & Wellness (3) Prerequisite: Students must complete an interview before enrolling in this course. Restriction: Permission of instructor; and minimum cumulative GPA of 2.5. Credit only granted for: HLTH383 or PEER314. Formerly: HLTH383. Additional information: Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required. Designed to train students to become Peer Educators who are responsible for presenting to members of the campus community about issues surrounding Sexually Transmitted Infections, sexual health testing and screening, birth control options, healthy sexuality, consent and communication, condoms and other barrier protection, campus sexual health services, and other issues related to sexual well being including bystander intervention. Programming is done in classroom settings, residence halls, and at tables during special events.

PEER 318 CARE Peer Advocacy (3) Prerequisite: Students must complete an interview before enrolling in this course; and permission of instructor. Recommended: PSYC100 and HLTH377. Restriction: Permission of instructor; and minimum cumulative GPA of 2.5; and students must sign up for the same course in the spring semester; and students are only permitted to enroll in the repeatable year long course once during their academic career. If students wish to continue working with the office after the course has been completed (Fall and Spring), they can do so on a volunteer basis; and must not have taken HLTH382 as a CARE Advocate course. Repeatable to 6 credits. Additional information: Students are required to attend a 40-hour training the week before classes begin which will equip them with the information and tools necessary to provide outreach as early as the first week of the Fall classes. Some evening and weekend hours may be required (crisis cell and special events). Designed to train students to become Peer Advocates who are responsible for providing crisis and short-term support services for victims of sexual assault, relationship violence, stalking, sexual harassment and child abuse. Students will be meeting with clients and providing emotional support and resources (both on and off campus). During weekly classes, students will be trained in trauma-informed crisis intervention procedures that will not only help them assist clients during in- person sessions but will help them support clients via the crisis cell. Students will be expected to maintain the crisis cell (on a shared basis)throughout the semester as well as maintain 10 hours per week in the CARE office. In addition to maintaining the crisis cell and office hours, during the spring semester students will be tasked with working as a team in planning and executing a Take Back the Night event.

PERS -- Persian

PERS 101 Elementary Persian I (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Introduction to the alphabet, pronunciation patterns, greetings, basic structures, and other fundamentals, with emphasis on oral and aural skills.

PERS 102 Elementary Persian II (4) Prerequisite: PERS101; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Continuation of PERS101 with emphasis on the use of formal language, vocabulary building, and reading.

PERS 105 Intensive Elementary Persian I (6) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Open to beginning learners of Persian only. Intensive training in spoken and written Persian at elementary level. Basic literacy skills, vocabulary, pronunciation and grammar developed through a highly interactive approach. Substantial cultural component familiarizing students with cultural themes related to Iran and the Persian speaking world. Taught in Persian.

PERS 106 Intensive Elementary Persian II (6) Prerequisite: Pre-requisite: PERS105, or equivalent, as determined by the FLPT (Foreign Language Placement Test). Intensive training in spoken and written Persian at elementary level (ACTFL Novice High to Intermediate Low). Continues building basic literacy skills, vocabulary, and grammar through highly a interactive approach. Substantial cultural component familiarizing students with cultural themes related to Iran and the Persian speaking world. Taught in Persian.

PERS 201 Intermediate Persian I (3) Prerequisite: PERS102; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities.

PERS 202 Intermediate Persian II (3) Prerequisite: PERS201; or Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be native/fluent speaker of Persian. Further development of speaking, writing, listening and cultural knowledge, with special focus on culture.

PERS 205 Intensive Intermediate Persian I (6) Prerequisite: PERS106; or equivalent as determined by Foreign Language Placement Test (FLPT). Development of Persian language proficiency and cultural knowledge at the intermediate level (Intermediate-Mid on ACTFL scale). Taught in Persian.

PERS 206 Intensive Intermediate Persian II (6) Prerequisite: PERS205; or equivalent, as determined by the FLPT (Foreign Language Placement Test). Designed to further develop Persian language proficiency and cultural knowledge at an intermediate level (Intermediate High on ACTFL scale). Taught in Persian.

PERS 211 Intermediate Conversation (3) Prerequisite: PERS102; or students who have taken courses with comparable content may contact the department. Recommended: Concurrent enrollment in PERS201. Development of aural and oral skills in Persian. Various genres and registers of speech. Special focus on contemporary daily life, with use of up-to-date media sources.

PERS 212 Intermediate Reading in Persian (3) Prerequisite: PERS211 and PERS201; or permission of instructor. Corequisite: PERS202; or permission of instructor. Focus on linguistic skill specific to reading; introduction to written traditions of Persian.

PERS 251 Modern Iran (3) General sociopolitical introduction to modern Iran from establishment of the Qajar dynasty in the late 18th century to the present day. Taught in English.

PERS 252 Gender and Body in Iran (3) Credit only granted for: PERS298A, WMST298J, or PERS252. Formerly: PERS298A. Multidisciplinary approach to key topics concerning gender and body in Iran, to include insights from religion, history, sociology, anthropology, disability studies, travel literature, arts, and fashion. Taught in English.

PERS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PERS 283 Iranian Cinema (3) Introduction to Iranian cinema, society, and culture. Taught in English.

PERS 298 Special Topics in Persian Studies (1-3) Repeatable to 9 credits if content differs. Special topic to be announced when course is offered.

PERS 299 Directed Study in Persian Language (1-3) Prerequisite: PERS202; or permission of ARHU-School of Languages, Literatures, and Cultures department. Directed study in Persian. Taught in Persian.

PERS 301 Advanced Persian I (3) Prerequisite: PERS202; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be native/fluent speaker of Persian. Development of speaking, reading, writing, listening and cultural knowledge through wide variety of activities, especially reading.

PERS 302 Advanced Persian II (3) Prerequisite: PERS301; or students who have taken courses with comparable content may contact the department. Restriction: Must not be native/fluent speaker of Persian. Further development of speaking, reading, writing, listening and cultural knowledge, with special focus on reading, in a variety of literary genres.

PERS 305 Intensive Advanced Persian I (6) Prerequisite: Must have completed PERS206; or equivalent as determinve by Foreign Language Placement Test (FLPT). Development of Persian language proficiency and cultural competence at an advanced level (Advanced Low on ACTFL scale). Taught in Persian.

PERS 306 Intensive Advanced Persian II (6) Prerequisite: PERS305; or equivalent as determined by FLPT (Foreign Language Placement Test). Continued development of Persian language proficiency at an Advanced Mid level on ACTFL scale through a whole language approach integrating listening, speaking, reading and writing. Taught in Persian.

PERS 311 Persian Media (3) Prerequisite: PERS301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Examines issues, values, institutions of the contemporary Persian and Persianete world, primarily through analysis and discussion of current events as reported in the written and audiovisual press. Focus will be on increasing content knowledge as well as linguistic competency in Persian. Taught in Persian.

PERS 312 Contemporary Iranian Culture (3) Prerequisite: PERS301; or students who have taken courses with comparable content may contact the department. Restriction: Must not be native/fluent speaker of Persian. Study of the culture of contemporary Iran (post-evolution) with focus on the contemporary social, political, literary and artistic life in Iran. Taught in Persian.

PERS 353 Iranian Life in Literature and Film (3) Treats major themes in modern literature and life of Iranians. Topics examined include Iranian identity, religious traditions, modern life, and expatriate communities. Taught in English.

PERS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PERS 371 Introduction to Persian Literature in Translation (3) Introduction to classical and modern canons of Persian literature in historical, esthetic, and social context. Taught in English.

PERS 386 Experiential Learning (3-6) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department. Pre-professional experience in research, analysis and writing in a work setting. Project proposal approved by faculty and internship sponsor.

PERS 398 Special Topics in Persian Studies (1-3) Prerequisite: PERS301; or permission of ARHU-School of Languages, Literatures, and Cultures department. Special topic to be announced when course is offered. Taught in Persian.

PERS 399 Directed Study in Persian (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Sophomore standing or higher. Repeatable to 9 credits if content differs. Directed study with faculty supervision.

PERS 401 Persian Composition (3) Prerequisite: PERS302; or permission of ARHU-School of Languages, Literatures, and Cultures department. A genre approach to writing, focusing on how and why different texts are structured and written as they are. The purpose, context, and intended audience for written communication will guide the writing tasks conducted in and out of class. Students analyze and investigate a variety of purposes and audiences of particular relevance to Persian flagship students. Taught in Persian.

PERS 402 Persian Translation (3) Prerequisite: PERS302; or permission of ARHU-School of Languages, Literatures, and Cultures department. Focuses on hands-on practice of English/Persian and Persian/English translation as well as the problematic issues of translation. Taught in Persian.

PERS 405 Media and the Current Issues in Iranian Society (6) Prerequisite: PERS306; or equivalent as determined by FLPT (Foreign Language Placement Test). Develops Persian language proficiency and domain-specific knowledge at advanced-mid to advanced-high level on ACTFL scale. Enhances linguistic and cultural competence. Provides a broad understanding of some of the current social, political and economic issues in modern Iran. Taught in Persian.

PERS 406 Practicum in Persian Translation (6) Prerequisite: PERS306; or equivalent as determined by the FLPT (Foreign Language Placement Test). Provides opportunities for translation, interpretation, and analysis of various authentic oral and written texts (both English to Persian and Persian to English). Facilitates the development of Persian language proficiency at advanced level through a task-based approach that integrates all the language skills in pedagogical translation activities.

PERS 411 Readings in Iranian Islam (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. In-depth study of Iranian Islam via Islamic texts. Develops competency in speaking, reading, writing, and listening comprehension at advanced level. Taught in Persian.

PERS 452 Modern Persian Literature: A Survey (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Surveys development of poetry and prose in the Persian-speaking world in modern times. Periods and genres. Content varies. Mastery of Persian is required.

PERS 498 Special Topics in Persian Studies (3) Prerequisite: Permission of instructor. Repeatable to 9 credits if content differs. Topic and language to be announced when offered.

PHIL -- Philosophy

PHIL 100 Introduction to Philosophy (3) An introduction to the literature, problems, and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy.

PHIL 140 Contemporary Moral Issues (3) The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice.

PHIL 170 Introduction to Logic (3) Development of analytical reasoning skills through study of formal logics, reasoning systems, and fallacious inference patterns.

PHIL 209 Philosophical Issues (3) Repeatable to 6 credits if content differs. An examination of selected philosophical issues of general interest.

PHIL 218 Issues in in Epistemology/Metaphysics (3) Repeatable to 12 credits if content differs. Additional information: Counts toward the epistemology/metaphysics requirement for the Philosophy major. An examination of selected philosophical issues in epistemology or metaphysics.

PHIL 228 Issues in History of Philosophy (3) Repeatable to 12 credits if content differs. Additional information: Counts toward the history of philosophy requirement for the Philosophy major. An examination of selected issues in the history of philosophy.

PHIL 230 Philosophy of the Arts (3) A survey of theoretical perspectives on the arts from Plato to the present, along with critical examination of specific works of art. Analysis of concepts central to thought about art, such as beauty, form, content, expression, representation, interpretation, creation, style, medium, realism, aesthetic experience, and aesthetic value.

PHIL 233 Philosophy in Literature (3) Reading and philosophical criticism of fiction, poetry, and drama, dealing with issues of moral, religious, and metaphysical significance.

PHIL 234 Fundamental Concepts of Judaism (3) Also offered as: JWST250, RELS250. Credit only granted for: JWST250, PHIL234, or RELS250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative"

Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

PHIL 235 Authority, Faith, and Reason in Judaism (3) Also offered as: JWST251. Credit only granted for: JWST251 or PHIL235. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

PHIL 236 Philosophy of Religion (3) Also offered as: RELS236. Credit only granted for: PHIL236 or RELS236. A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.

PHIL 238 Issues in Value Theory (3) Repeatable to 12 credits if content differs. Additional information: Counts toward the value theory requirement for the Philosophy major. An examination of selected issues in ethics, aesthetics, political philosophy and related areas.

PHIL 245 Political and Social Philosophy I (3) A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent Marxist thinkers.

PHIL 250 Philosophy of Science I (3) Main issues in the philosophy of science. Special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences.

PHIL 256 Philosophy of Biology I (3) Issues in the discovery and justification of biological theories and models. Focus on cases from twentieth century biology, such as the genetic revolution or evolutionary theory.

PHIL 261 Philosophy of the Environment (3) Credit only granted for: HONR218F or PHIL261. Formerly: HONR218F. An evaluation of different kinds of arguments for the claim that the natural environment should be preserved. Perspectives cut across the disciplines of philosophy (environmental ethics and philosophies of nature); economics (cost-benefit analysis); and biology (evolution, ecology, environmental studies).

PHIL 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PHIL 280 Perspectives on the Mind: Philosophy and Cognitive Science (3) The role of representation and reasoning in cognition considered from the differing perspectives of the cognitive-science disciplines: linguistics, philosophy, neuroscience, psychology and computer science.

PHIL 282 Free Will & Determinism (3) A study of the main positions and arguments in the free will debate in contemporary analytic philosophy.

PHIL 308 Studies in Contemporary Philosophy (3) Prerequisite: 6 credits in PHIL courses. Repeatable to 6 credits if content differs. Problems, issues, and points of view of current interest in philosophy.

PHIL 309 Philosophical Problems (3) Prerequisite: 6 credits in PHIL courses. Repeatable to 12 credits if content differs. A focused study of a contemporary philosophical problem or issue. Topics will vary, but the course will encourage students to to generate critical analyses or proposed resolutions of issues in the contemporary philosophical literature.

PHIL 310 Ancient Philosophy (3) Prerequisite: Must have completed 6 credits in philosophy or classics. A study of the origins and development of philosophy and science in ancient Greece, focusing on the pre-Socratics, Socrates, Plato, and Aristotle.

PHIL 318 Studies in Epistemology/Metaphysics (3) Prerequisite: 1 course in PHIL. Repeatable to 12 credits if content differs. Additional information: Counts toward the epistemology/metaphysics requirement for the Philosophy major. Problems, issues, and points of view in epistemology or metaphysics.

PHIL 320 Modern Philosophy (3) Prerequisite: 6 credits in PHIL courses. A study of major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Newton, Hume, and Kant.

PHIL 324 Existentialism (3) Prerequisite: 6 credits in PHIL courses. A study of authors such as Kierkegaard, Nietzsche, Heidegger, Sarte, and Camus on issues of human morality, freedom, and suffering.

PHIL 328 Studies in the History of Philosophy (3) Prerequisite: 6 credits in PHIL courses. Repeatable to 6 credits if content differs. Problems, issues, and points of view in the history of philosophy.

PHIL 332 Philosophy of Beauty (3) Prerequisite: 3 courses in PHIL; or permission of ARHU-Philosophy department. Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.

PHIL 338 Studies in Value Theory (3) Prerequisite: 1 course in PHIL. Repeatable to 12 credits if content differs. Additional information: Counts toward the value theory requirement for the Philosophy major. Problems, issues and points of view in ethics, aesthetics, political philosophy and related areas.

PHIL 341 Ethical Theory (3) Prerequisite: 6 credits in PHIL courses. A critical examination of classical and contemporary systems of ethics, such as those of Aristotle, Kant, Mill, and Rawls.

PHIL 347 Philosophy of Law (3) Credit only granted for: PHIL347 or PHIL447. Formerly: PHIL447. Examination of fundamental concepts related to law, e.g. legal systems, law and morality, justice, legal reasoning, responsibility.

PHIL 354 Philosophy of Physics (3) Prerequisite: MATH120 or PHYS260; or must have completed MATH220; or students who have taken courses with comparable content may contact the department; or permission of ARHU-Philosophy department. Recommended: PHYS401 and PHYS270. Credit only granted for: PHIL354 or PHIL452. An introduction to current issues at the interface of physics and philosophy, associated with our current picture of the physical world as fundamentally quantum mechanical. Topics include the debate between Einstein and Bohr on the objectivity and completeness of the quantum description, nonlocality and Bell's theorem, realism and the measurement problem, irreversibility and the arrow of time.

PHIL 360 Philosophy of Language (3) Prerequisite: 2 courses in PHIL; and (PHIL170 or PHIL370). Or permission of ARHU-Philosophy department. Also offered as: LING350. Credit only granted for: LING350 or PHIL360. An inquiry into the nature and function of language and other forms of symbolism.

PHIL 362 Theory of Knowledge (3) Prerequisite: 6 credits in PHIL courses; and PHIL170. Formerly: PHIL462. Some central topics in the theory of knowledge, such as perception, memory, knowledge, and belief, skepticism, other minds, truth, and the problems of induction.

PHIL 364 Metaphysics (3) Prerequisite: 6 credits in PHIL courses. Formerly: PHIL464. The study of some central metaphysical concepts and issues including the nature and validity of metaphysical thinking, universals, identity, substance, time, God, and reality.

PHIL 366 Philosophy of Mind (3) Prerequisite: 6 credits in PHIL courses. An introduction to core issues in the philosophy of mind, focusing especially on the basic metaphysical question of dualism versus physicalism.

PHIL 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PHIL 370 Symbolic Logic (3) Prerequisite: PHIL170 or CMSC250; or permission of ARHU-Philosophy department. Credit only granted for: PHIL271, PHIL370, or PHIL371. A review of propositional and predicate logic and related topics and an introduction to the semantics and metatheory of first-order logic.

PHIL 386 Experiential Learning (3-6) Restriction: Permission of ARHU-Philosophy department; and junior standing or higher.

PHIL 408 Topics in Contemporary Philosophy (3) Repeatable to 99 credits if content differs. An intensive examination of contemporary problems and issues. Source material will be selected from recent books and articles.

PHIL 409 Advanced Studies in Contemporary Philosophy (3) Prerequisite: 6 credits in PHIL courses. Repeatable to 12 credits if content differs. An in-depth study of a contemporary philosophical problem or issue. Topics will vary, but the course will encourage students to grapple with the primary literature in order to generate sustained critical analyses or proposed resolutions of issues under active consideration in contemporary philosophy.

PHIL 412 The Philosophy of Plato (3) Prerequisite: 9 credits in PHIL courses. A critical study of selected dialogues.

PHIL 414 The Philosophy of Aristotle (3) Prerequisite: 3 courses in PHIL. A critical study of selected portions of Aristotle's writings.

PHIL 416 Medieval Philosophy (3) Prerequisite: 6 credits in PHIL courses. A study of philosophical thought from the fourth to the fourteenth centuries. Readings selected from Christian, Islamic, and Jewish thinkers.

PHIL 417 The Golden Age of Jewish Philosophy (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Philosophy department. Also offered as: JWST452. Credit only granted for:

JWST452 or PHIL417. Jewish philosophy from Maimonides in the 12th century to the expulsion of the Jews from Spain at the end of the 15th century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

PHIL 418 Topics in Epistemology/Metaphysics (3) Prerequisite: 2 courses in PHIL. Repeatable to 12 credits if content differs. An intensive examination of contemporary problems and issues in epistemology or metaphysics. Source material will be selected from recent books and articles.

PHIL 424 The Philosophy of Spinoza (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Philosophy department. Restriction: Must not have completed JWST453. Also offered as: JWST453. Credit only granted for: JWST453 or PHIL424. An investigation of the metaphysical, ethical and political thought of the 17th century philosopher Benedict Spinoza.

PHIL 426 Twentieth Century Analytic Philosophy (3) Restriction: Permission of ARHU-Philosophy department; and senior standing. Credit only granted for: PHIL326 or PHIL426. Formerly: PHIL326. Major issues in twentieth century analytic philosophy examined through such philosophers as Frege, Russell, Carnap, Moore and Wittgenstein.

PHIL 428 Topics in the History of Philosophy (3) Prerequisite: PHIL310 and PHIL320; or permission of ARHU-Philosophy department. Repeatable to 99 credits if content differs.

PHIL 431 Aesthetic Theory (3) Prerequisite: 9 credits in PHIL courses; or permission of ARHU-Philosophy department. Study of the theory of the aesthetic as a mode of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 438 Topics in Value Theory (3) Prerequisite: 2 courses in PHIL. Repeatable to 12 credits if content differs. An intensive examination of contemporary problems and issues in ethics, aesthetics, political philosophy and related areas. Source material will be selected from recent books and articles.

PHIL 440 Contemporary Ethical Theory (3) Prerequisite: PHIL341; or permission of instructor. Contemporary work on fundamental problems in ethical theory, such as whether there are moral truths, whether and how our moral claims can be justified, what exactly makes an act right or wrong, the nature of moral language, and the role of reason and emotion in moral judgment.

PHIL 445 Contemporary Political Philosophy (3) Restriction: Must have completed 3 credits in philosophy or political theory; or permission of ARHU-Philosophy department. And sophomore standing or higher. Major trends in contemporary political philosophy: liberal, libertarian, communitarian, socialist, feminist.

PHIL 446 Law, Morality, and War (3) Prerequisite: GVPT401 and PHIL341; or permission of ARHU-Philosophy department. Also offered as: GVPT403. An exploration of fundamental moral and legal issues concerning war.

PHIL 454 Philosophy of Space and Time (3) Prerequisite: 6 credits in PHIL courses. A non-technical investigation of philosophical issues in the foundations of physics. Topics may include traditional philosophical problems of space and time, metaphysical issues about the nature of particles and fields, and philosophical problems associated with the introduction of probability into physics, such as the problem of irreversibility in thermodynamics and the problem of objectivity in quantum theory.

PHIL 456 Philosophy of Biology II (3) Prerequisite: PHIL256 or PHIL250; or must be Life Science major; or permission of ARHU-Philosophy department. Questions about concepts, reasoning, explanation, etc., in biology, and their relations to those of other areas of science. Case studies of selected aspects of the history of biology, especially in the twentieth century.

PHIL 458 Topics in the Philosophy of Science (3) Repeatable to 6 credits if content differs. A detailed examination of a particular topic or problem in philosophy of science.

PHIL 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PHIL 470 Logical Theory (3) Prerequisite: PHIL370; or permission of instructor. This course will treat a selection of the most important topics in modern logic: alternative proof-theoretic presentations of logical systems, completeness proofs for classical propositional and first-order logic, some basic computability theory, basic limitative results (such as Godel's incompleteness theorems), and some results concerning second-order logic. The primary focus of the course is a study of these fundamental topics, but we will also discuss some of the philosophical issues they raise.

PHIL 478 Topics in Philosophical Logic (3) Prerequisite: PHIL370; or permission of instructor. Recommended: PHIL470. Repeatable to 9 credits if content differs. Methods and results of philosophical logic, the application of logical techniques to the study of concepts or problems of philosophical interest. Content will vary, either treating a particular logical area in detail--such as modal logic, conditional logic, deontic logic, intuitionistic or relevance logic, theories of truth and paradox--or surveying a number of these different areas.

PHIL 481 Philosophy of Psychology: Representation (3) Prerequisite: PHIL366 or PHIL280; and 6 credits in PHIL courses. Semantics and representations within computational framework: intentionality, explicit vs. implicit representation, syntax vs. semantics of thought, connectionist approaches, images, classical vs. prototype theories of concepts.

PHIL 482 Philosophy of Psychology: Subjectivity (3) Prerequisite: PHIL366 or PHIL280; and 6 credits in PHIL courses. The nature of subjectivity: problems of "point of view," the "qualities" or "feel" of things, emotions, consciousness - whether these phenomena can be captured by a computational theory of mind.

PHIL 488 Topics in Philosophy of Cognitive Studies (3) Prerequisite: 3 credits in PHIL courses; or permission of ARHU-Philosophy department. Repeatable to 9 credits if content differs. Examination of a particular topic or problem in philosophy of cognitive studies.

PHIL 489 Undergraduate Seminar in Philosophy (3-6) Restriction: Permission of ARHU-Philosophy department. Repeatable to 6 credits if content differs. An intensive examination of a philosophical topic or topics.

PHIL 498 Topical Investigations (1-3)

PHSC -- Public Health Science

PHSC 389 Independent Research Study in Public Health Science (1-3) Restriction: Must be in Public Health Science program; and must have earned a minimum of 45 credits; and permission of instructor.

Repeatable to 6 credits if content differs. This independent research-based experience will provide the opportunity for students to work with individual research mentors in the area of Public Health Science. Students must identify a mentor prior to obtaining departmental permission.

PHSC 399 Public Health Science Internship (1-6) Restriction: Must be in Public Health Science program; and must have completed a minimum of 75 credits; and must have permission of instructor. Repeatable to 6 credits if content differs. Credit only granted for: PHSC491 or SPHL491. Formerly: SPHL491. Additional information: Prospective students must meet with an advisor and complete internship verification, expectations and responsibilities prior to registration. This is generally completed the semester prior to beginning the internship. The Public Health Science internship will enable students to gain practical experience under conditions conducive to academic, research and professional development. The internship is a time-limited, supervised period of public health professional experience carried out in a related professional organization or research setting.

PHSC 401 History of Public Health (3) Restriction: Must be in Public Health Science program; and must have earned a minimum of 45 credits. Credit only granted for: PHSC401 or SPHL401. Formerly: SPHL401. Emphasis is on the history of public health in the Western world from antiquity to the present. Also examines the influence of public health developments as they relate to the Western world as well as throughout diverse cultures and societies across the globe. Analysis focuses on the interaction among Western and non-Western cultures with respect to health issues, including science, policies, prevention and treatment.

PHSC 402 Public Health Emergency Preparedness (3) Prerequisite: Minimum grade of C- in EPIB300 and EPIB301. Restriction: Must be in Public Health Science program; and junior standing or higher. Credit only granted for: PHSC402 or SPHL402. Formerly: SPHL402. Intensive introduction to public health emergency preparedness. Course will provide students with an overview of the role of public health in planning, prevention, preparedness, response, and recovery from disasters, both manmade and natural.

PHSC 405 Policy Advocacy and Public Health (3) Prerequisite: Minimum grade of C- in PHSC401. Restriction: Must be in Public Health Science program; and must have earned a minimum of 60 credits. Students will identify and analyze policy solutions to public health problems and determine advocacy strategies to encourage policy makers to implement the recommendations. Lectures, class discussions, group work and mock advocacy exercises will integrate the principles and practice of public health advocacy. Guest lecturers from a variety of settings will give students a broad range of perspectives and advocacy experiences.

PHSC 410 Public Health Program Planning and Evaluation (3) Restriction: Must be in Public Health Science program; and junior standing or higher. Credit only granted for: PHSC410 or SPHL410. Formerly: SPHL410. Students will become familiar with the dynamics of public health progra planning, and the basic process of identifying unmet needs. They will be able to identify different types of program evaluation, including needs assessment, formative research, process evaluation, impact assessment, and cost analysis.

PHSC 412 Food, Policy, and Public Health (3) Prerequisite: Must have completed HLSA300 with a C- or higher. Recommended: NFSC100. Restriction: Must be in Public Health Science program; and junior standing or higher. Credit only granted for: PHSC412 or SPHL412. Formerly: SPHL412. Broad overview of the impact of food and food policy on public health. Course covers topics such as access to food, food systems, influence of food policies on the individual, the cost of food, influences on food selection, food

safety risks and responses, nutrition-related health challenges, and a comparison of US food/nutrition issues with those of other nations.

PHSC 415 Essentials of Public Health Biology: The Cell, The Individual, and Disease (3) Prerequisite: Minimum grade of C- in BSCI202. Recommended: BSCI223. Restriction: Must be in Public Health Science program; and junior standing or higher. Credit only granted for: PHSC415, SPHL415 or SPHL498J. Formerly: SPHL415 and SPHL498J. Presents the basic scientific and biomedical concepts of modern public health problems and explores in depth mechanisms and models of the major categories of disease. The biologic principles presented are foundations to public health disease prevention, control, or management programs.

PHSC 420 Vaccines and Immunology (3) Prerequisite: Minimum grade of C- in BSCI223. Recommended: CHEM231. Restriction: Must have earned a minimum of 60 credits. And must be in Public Health Science program; or permission of instructor. An exploration of immunology and vaccines through a public health lens. We will examine the cells, systems, and molecules that comprise the human immune system and defend your body against disease. In addition, we will discuss the strategies used during vaccine development including the history and future of vaccination and how increased understanding of the immune system has allowed scientists to improve and refine the process. Finally we will examine the current social and political situation surrounding vaccination and the roles and responsibility of public health practitioners.

PHSC 497 Public Health Science Capstone (3) Prerequisite: Students must have completed the professional writing requirement, MIEH300 and EPIB300, all with a C- or higher. Restriction: Must have earned a minimum of 100 credits; and must be in Public Health Science program; and must be in the final semester of undergraduate study. Credit only granted for: SPHL498F or PHSC497. Formerly: SPHL498F. The capstone course is the culminating experience for Public Health Science students and must be taken only in the final semester of study. The Public Health Science capstone course is designed to challenge students to integrate the five core areas of public health in investigating, researching and addressing public health issues. Throughout the semester, students will be required to evaluate, analyze and synthesize scholarly works as they research and propose solutions to a variety of public health issues. By the conclusion of this research based course, students will understand how the various public health perspectives can combine in addressing and informing public health practices.

PHYS -- Physics

PHYS 101 Contemporary Physics - Revolutions in Physics (3) Prerequisite: Must have math eligibility of MATH120 or higher. Restriction: Must not have completed PHYS111. For non-science students who are interested in the evolution of scientific thought and its present day significance. Historical, philosophic, experimental and theoretical aspects of physics are presented. Topics in mechanics, relativity, electricity and magnetism, and nuclear physics are covered.

PHYS 102 Physics of Music (3) Prerequisite: Must have math eligibility of MATH107 or higher. Credit only granted for: PHYS102 and PHYS499C. Additional information: CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS103. A study of the physical basis of sound, acoustical properties of sound, the human ear and voice, reproduction of sound, electronic music, acoustical properties of auditoriums, and other selected topics.

PHYS 103 Physics of Music Laboratory (1) Optional laboratory to accompany PHYS 102. Laboratory experiments, including the velocity of sound, sound quality and wave shape, traveling and standing waves, fourier synthesis and analysis, musical synthesizer, psychoacoustics, and audio equipment.

PHYS 104 How Things Work: Science Foundations (3) Prerequisite: Must have math eligibility of MATH107 or higher. Restriction: Must not have completed PHYS121; and students who have completed PHYS121 or any higher PHYS course may contact the department for permission to take the course. This is a course with a non-mathematical emphasis designed to study the basics of mechanical, electrical, and optical devices that are commonly found in the world around us. The general approach would be to look inside things to observe how they work.

PHYS 105 Physics for Decision Makers: Global Energy Crisis (3) This marquee course will consider the global energy crisis from a scientific perspective. Topics include basic laws of energy and thermodynamics, their effects on energy production and distribution, greenhouse gas, global warming and policy options for decision makers. This course is aimed at the non-science major.

PHYS 106 Light, Perception, Photography, and Visual Phenomena (3) Intended for the general student, this course will cover topics in optics which require minimal use of mathematics. Principles of optics, lenses, cameras, lasers and holography, physics of the eye, color vision and various visual phenomena such as rainbows.

PHYS 107 Light, Perception, Photography and Visual Phenomena Laboratory (1) Optional laboratory to accompany PHYS106. Laboratory experiments include geometrical optics (lenses, cameras, eye), optical instruments (telescope, binoculars), photography, perception, color phenomena, and wave phenomena.

PHYS 111 Physics in the Modern World (3) A survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student; does not satisfy the requirements of the professional schools.

PHYS 115 Inquiry into Physics (4) Recommended: High School Physics. Restriction: Must not have completed PHYS117; and must be in one of the following programs (Elementary Education; Early Childhood Education; Middle School Education). Credit only granted for: PHYS115 or PHYS117. Intended for students majoring in neither the physical nor the biological sciences. Use of laboratory-based and inquiry-based methods to study some of the basic ideas of physical sciences.

PHYS 121 Fundamentals of Physics I (4) Prerequisite: MATH112 or MATH115. Credit only granted for: PHYS121, PHYS131, or PHYS331. The first part of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS122, this generally satisfies the minimum requirement of medical and dental schools.

PHYS 122 Fundamentals of Physics II (4) Prerequisite: PHYS121; or students who have taken courses with comparable content may contact the department. Credit only granted for: PHYS122, PHYS132, or PHYS332. A continuation of PHYS121, which together with it, generally satisfies the minimum requirement of medical and dental schools.

PHYS 131 Fundamentals of Physics for Life Sciences I (4) Prerequisite: MATH130, MATH131, and CHEM131; and (BSCI160 and BSCI161; or BSCI106); and (BSCI170 and BSCI171; or BSCI105). Or students who have taken courses with comparable content may contact the department. Credit only granted for: PHYS121, PHYS131, or PHYS331. The first part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic mechanics including forces and energy, properties of matter, and thermodynamics done in authentic biological contexts.

PHYS 132 Fundamentals of Physics for Life Sciences II (4) Prerequisite: PHYS131; or students who have taken courses with comparable content may contact the department. Credit only granted for: PHYS122, PHYS132, or PHYS332. The second part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic statistical physics, electricity and magnetism, and optics done in authentic biological contexts.

PHYS 141 Principles of Physics (4) Corequisite: MATH141 or MATH121; or MATH221. Credit only granted for: PHYS141, PHYS161, or PHYS171. The first of a two-semester series in general physics. The first semester covers the fields of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools.

PHYS 142 Principles of Physics (4) Prerequisite: PHYS141; or students who have taken courses with comparable content may contact the department. Credit only granted for: PHYS142, (PHYS260 and PHYS261), or PHYS272. A continuation of PHYS141 covering waves, electricity and magnetism, optics and modern physics.

PHYS 161 General Physics: Mechanics and Particle Dynamics (3) Prerequisite: Must have completed or be concurrently enrolled in MATH141. Credit only granted for: PHYS141, PHYS161, or PHYS171. First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation.

PHYS 165 Introduction to Programming in the Physical Sciences (3) Prerequisite: PHYS171, PHYS141, or PHYS161; or must have scored 3 or higher on AP PHYS exam. Introduction to programming using examples in the physical sciences. Provides instruction in the techniques of upper-level languages such as Fortran, C, and Pascal, as well as an introduction to the object oriented programming techniques used in Python, C++ and Java. Includes strong component of visualization and graphing.

PHYS 170 Professional Physics Seminar (1) Corequisite: MATH140. Provides a look at some of the major developments of current interest in physics research and discusses the activities physicists undertake in research, education, industry, government, and other areas of the economy.

PHYS 171 Introductory Physics: Mechanics and Relativity (3) Prerequisite: (MATH140; and a high school physics course); or permission of CMNS-Physics department. And must have completed or be concurrently enrolled in MATH141. Credit only granted for: PHYS141, PHYS161, or PHYS171. First semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, energy and work, linear and angular momenta, temperature and pressure, ideal gas law, and special relativity.

PHYS 174 Physics Laboratory Introduction (1) Corequisite: MATH140. Recommended: High school physics. Introduces students to the techniques of data gathering and analysis. This course will lay a foundation for higher-level labs in physics and the physical sciences. Students will learn to use laboratory equipment such as calipers, meters, oscilloscopes, and computer interfaces. Techniques of measurement and error analysis will be presented. Students will be taught to use the computer for data analysis with an emphasis on using spreadsheets.

PHYS 260 General Physics: Vibration, Waves, Heat, Electricity and Magnetism (3) Prerequisite: PHYS161 and MATH141. Corequisite: PHYS261. Credit only granted for: PHYS142, PHYS260, or

PHYS272. Second semester of a three-semester calculus-based general physics course. Vibrations, waves, fluids; heat, kinetic theory, and thermodynamics; electrostatics, circuits, and magnetism. PHYS260 and PHYS261 must be taken in the same semester.

PHYS 261 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory) (1) Corequisite: PHYS260. Lab includes experiments on mechanics, vibrations, waves, heat, electricity and magnetism. PHYS260 and PHYS261 (lab) must be taken in the same semester.

PHYS 270 General Physics: Electrodynamics, Light, Relativity and Modern Physics (3) Prerequisite: PHYS261, MATH241, and PHYS260. Corequisite: PHYS271. Third semester of a three-semester calculus-based general physics course. Electrodynamics, Maxwell's equations and electromagnetic waves, geometrical optics, interference, diffraction, special theory of relativity, and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester.

PHYS 271 General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory) (1) Prerequisite: PHYS261. Corequisite: PHYS270. Lab includes experiments on ac circuits, magnetism, light and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester.

PHYS 272 Introductory Physics: Fields (3) Prerequisite: PHYS161 or PHYS171; and MATH141; and must have completed or be concurrently enrolled in MATH241. Credit only granted for: PHYS142, (PHYS260 and PHYS261) or PHYS272.. Additional information: CORE Distributive Studies Physical Sciences Laboratory Course only when taken concurrently with PHYS275. Second semester of a calculus based general physics course. Universal gravitation, electric and magnetic fields and potentials, simple circuits, Maxwell's equations in integral form. Continues the application of mathematics to conceptual models, now with more abstract components.

PHYS 273 Introductory Physics: Waves (3) Prerequisite: MATH241 and PHYS272. Corequisite: PHYS274. Credit only granted for: (PHYS270 and PHYS271) or PHYS273. Oscillations and AC circuits using complex variables, Fourier series and integrals, waves on strings, sound; electromagnetic waves from Maxwell's equations in differential form; physical optics.

PHYS 274 Mathematical Methods for Physics I (3) Prerequisite: MATH241 and PHYS272. A first course in mathematical methods for physics. Topics include linear algebra, curvilinear coordinates and vector analysis.

PHYS 275 Experimental Physics I: Mechanics and Heat (2) Prerequisite: PHYS161 or PHYS171; and PHYS174. Additional information: CORE Physical Science Lab (PL) Course only when taken concurrently with PHYS272. Methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of mechanics (from PHYS171), gas laws, and heats. Theory and applications of error analysis.

PHYS 276 Experimental Physics II: Electricity and Magnetism (2) Prerequisite: PHYS272 and PHYS275. Second course in the three semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the fields of electricity and magnetism including electrostatics, magnetostatics, magnetic induction, AC circuits.

PHYS 299 Special Problems in Physics (1-6) Prerequisite: Permission of CMNS-Physics department. Research or special study to complement courses taken elsewhere which are not fully equivalent to those in departmental requirements. Credit according to work done.

PHYS 305 Physics Shop Techniques (1) Prerequisite: Permission of CMNS-Physics department. Machine tools, design and construction of laboratory equipment.

PHYS 318 Topics in Contemporary Physics (3) Prerequisite: PHYS122 or PHYS111; or permission of CMNS-Physics department. A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics covered will include lasers, quantum liquids, cosmology, elementary particles and geophysics.

PHYS 331 Physics for Life Sciences I (4) Prerequisite: MATH130, MATH131, and CHEM131; and (BSCI160 and BSCI161; or BSCI106); and (BSCI170 and BSCI171; or BSCI105). Or students who have taken courses with comparable content may contact the department. Credit only granted for: PHYS121, PHYS131 or PHYS 331. The first part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic mechanics including forces and energy, properties of matter, and thermodynamics done in authentic biological contexts.

PHYS 332 Physics for Life Sciences II (4) Prerequisite: PHYS331; or PHYS131; or students who have taken courses with comparable content may contact the department. Credit only granted for: PHYS122, PHYS132, or PHYS332. The second part of a two-semester course in general physics specifically oriented towards applications relevant for students in biology and pre-medical programs. The course covers basic statistical physics, electricity and magnetism, and optics done in authentic biological contexts.

PHYS 371 Modern Physics (3) Prerequisite: PHYS273 and PHYS274. Corequisite: PHYS373. Credit only granted for: PHYS371 or PHYS420. Additional information: This course is intended primarily for physics and astronomy majors. Introduces students to special relativity, thermodynamics and quantum mechanics at an intermediate level.

PHYS 373 Mathematical Methods for Physics II (3) Prerequisite: PHYS273 and PHYS274. A second course in mathematical methods for physics. Topics include introduction to ordinary differential equations, partial differential equations, and complex analysis.

PHYS 374 Intermediate Theoretical Methods (4) Prerequisite: MATH246 and PHYS273. Corequisite: MATH240. Introduces or reviews areas of mathematics that are regularly used in upper level and graduate courses in physics, including important areas from complex variables, Fourier analysis, partial differential equations and eigenvalue problems. These methods will be studied in the context of relevant physics applications. A current standard symbolic manipulation program will be introduced and its appropriate use in theoretical analyses will be taught.

PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics (3) Prerequisite: PHYS276 and PHYS273. Third course in the three-semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the areas of electromagnetic waves, optics and modern physics.

PHYS 386 Experiential Learning (3-6)

PHYS 389 Undergraduate Thesis Research (1-6) Prerequisite: Permission of CMNS-Physics department. Restriction: Must be in a major within CMNS-Physics department. Repeatable to 6 credits. Independent directed research and study on a topic selected by the student in consultation with his or her advisor. Final written thesis and oral defense will be expected.

PHYS 398 Independent Studies Seminar (1-16) Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

PHYS 399 Special Problems in Physics (1-3) Prerequisite: PHYS405; and permission of CMNS-Physics department. Selected advanced experiments. (Will be given with sufficient demand.)

PHYS 401 Quantum Physics I (4) Prerequisite: PHYS371 and PHYS373. Formerly: PHYS421. Introduces some quantum phenomena leading to wave-particle duality. Schroedinger theory for bound states and scattering in one dimension. One-particle Schroedinger equation and the hydrogen atom.

PHYS 402 Quantum Physics II (4) Prerequisite: PHYS401. Quantum states as vectors; spin and spectroscopy, multiparticle systems, the periodic table, perturbation theory, band structure, etc.

PHYS 404 Introduction to Statistical Thermodynamics (3) Prerequisite: PHYS371 or PHYS420. Introduction to basic concepts in thermodynamics and statistical mechanics.

PHYS 405 Advanced Experiments (3) Prerequisite: PHYS375. Restriction: Must be in a major within CMNS-Physics department. Advanced laboratory techniques. Selected experiments from many fields of modern physics. Emphasis on self-study of the phenomena, data analysis, and presentation in report form.

PHYS 407 Undergraduate Experimental Research (3) Prerequisite: PHYS499 and PHYS375; and permission of CMNS-Physics department. Restriction: Must be in a major within CMNS-Physics department; and senior standing. Students develop and complete an independent, experimental research project with a professor in the Physics Department. The project should be a continuation of work done in PHYS499A. To obtain permission, students must submit a proposal describing the experimental work to be completed and this proposal must be approved by their faculty mentor, the associate chair for undergraduate education and the chair of the laboratory committee. Students must maintain a lab notebook, give an oral presentation and complete a written report on their research that includes data and error analysis.

PHYS 410 Classical Mechanics (4) Prerequisite: PHYS373. Theoretical foundations of mechanics with extensive application of the methods. Various mathematical tools of theoretical physics.

PHYS 411 Intermediate Electricity and Magnetism (4) Prerequisite: PHYS373. Foundations of electromagnetic theory, with extensive applications of the methods. Thorough treatment of wave properties of solutions of Maxwell's equations.

PHYS 420 Principles of Modern Physics (3) Prerequisite: MATH246. And PHYS271 and PHYS270; or PHYS273. Credit only granted for: PHYS371 or PHYS420. A survey of atomic and nuclear phenomena and the main trends in modern physics. Appropriate for students in engineering and other physical sciences.

PHYS 428 Physics Capstone Research (2-4) Restriction: Must be in a major within CMNS-Physics department; and senior standing or higher; and permission of instructor. Repeatable to 4 credits. Individual, focused research under the guidance of a faculty member. Discussion, presentations and, if appropriate, research group projects involved. Student must submit final research paper for completion of course. Paper may also serve as thesis required for High Honors in Physics. Not intended as a general "reading course" (see PHYS499).

PHYS 429 Atomic and Nuclear Physics Laboratory (3) Prerequisite: PHYS405. Classical experiments in atomic physics and more sophisticated experiments in current techniques in nuclear physics.

PHYS 431 Properties of Matter (3) Prerequisite: PHYS271, PHYS270, and MATH241; and (PHYS401 or PHYS420). Also offered as: ENMA460. Credit only granted for: ENMA460 or PHYS431. Introduction to solid state physics. Electromagnetic, thermal, and elastic properties of metals, semiconductors, insulators and superconductors.

PHYS 441 Topics in Nuclear and Particle Physics (3) Prerequisite: PHYS401 or PHYS402. Corequisite: PHYS402. A survey of concepts in particle and nuclear physics, with a topical emphasis on the impact of the Weak Interaction and the discovery of Parity Violation.

PHYS 485 Electronic Circuits (4) Prerequisite: PHYS405. Corequisite: PHYS374. Restriction: Must be in a major within CMNS-Physics department. Theory and application to experimental physics of modern semiconductor analog and digital circuits. Emphasis on understanding passive and active elements in practical circuits. Topics span the range from simple transistor circuits to microcomputers.

PHYS 499 Special Problems in Physics (1-16) Research or special study. Credit according to work done.

PLCY -- Public Policy

PLCY 201 Leadership for the Common Good (3) Credit only granted for: PLCY201 or PUAF201. Formerly: PUAF201. This course is designed to provide undergraduate students an introduction to leadership theory and a chance to practice a core set of practical skills relevant to transformational and collaborative leadership.

PLCY 214 Leading and Investing in Social Change: Re-defining and Experimenting with Philanthropy (3) Credit only granted for: PLCY214, PUAF214 or PUAF359I. Formerly: PUAF359I, PUAF214. Defines philanthropy as an exploration of how one develops a vision of the public good and then deploys resources (including donations, volunteers, and voluntary associations) to achieve an impact.

PLCY 215 Innovation and Social Change: Creating Change for Good (3) Credit only granted for: PLCY215 or PUAF215. Formerly: PUAF215. A team-based, highly interactive and dynamic course that provides an opportunity for students to generate solutions to a wide range of problems facing many communities today. Students in the iGIVE Program will deepen their understanding of entrepreneurship and innovation practices by creating and implementing projects or ventures that address an issue of their choosing while learning topics such as communications, project management, teamwork, leadership, fundraising, project sustainability and next steps in social change.

PLCY 301 Sustainability (3) Also offered as: AGNR301. Credit only granted for: AGNR301, PUAF301, or PLCY301. Formerly: PUAF301. Designed for students whose academic majors would be enhanced by the complementary study of a widely shared but hard-to-operationalize aspiration: that present choices should preserve or improve future options rather than foreclose or degrade them. How should we understand sustainability? How might we achieve it? How would we know if we had achieved it? And how could sustainability activists of a rising generation lead by example?

PLCY 302 Leadership: Philosophy, Policy and Praxis (3) Credit only granted for: PLCY302 or PUAF302. Formerly: PUAF302. Leadership as a search for meaning, identity and purpose are explored.

Also introduces major philosophical traditions, from the ancient world to the modern one, and encourages students to ground their leadership interests and aspirations in a disciplined process of self-reflection, critical thinking and inquiry.

PLCY 311 Women in Leadership (3) Credit only granted for: PUAF311, PLCY311 or PUAF359W. Formerly: PUAF359W. Examines the role of women in the leadership process including the participation of women as activists, voters, advocates, public leaders and as agents of change through various avenues including, among others, public service (elected and appointed), the media, community service, political organizations, and the nonprofit sector.

PLCY 312 Leading to Get Results (3) Credit only granted for: PUAF312, PLCY312 or PUAF359J. Formerly: PUAF359J. Students will have an opportunity to learn and use results-based leadership competencies to take actions that will make a measurable difference in an issue affecting the student and/or university community.

PLCY 313 Advocacy in the American Political System (3) Credit only granted for: PUAF313, PLCY313 or PUAF359C. Formerly: PUAF359C. Introduces students to the creation of law through the legislative process with a special focus on the Maryland General Assembly.

PLCY 315 Intelligence As a National Security Instrument (3) Credit only granted for: PUAF315, PLCY315 or PUAF388I. Formerly: PUAF388I. Examines the role of intelligence in US national security policy. Topics will include the post WWII history of US intelligence, the current structure of the US intelligence community, the intelligence cycle, covert action, interrogation and intelligence, counterintelligence and cybersecurity.

PLCY 338 Academic Seminar for Interns: Federal and International (3) Corequisite: PUAF339. Restriction: Permission of PLCY-School of Public Policy. Repeatable to 6 credits if content differs. Formerly: PUAF338. The academic seminar for student interns in PUAF399. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

PLCY 339 Internship in Political Institutions: Federal and International (3-6) Corequisite: PUAF338. Restriction: Permission of PLCY-School of Public Policy. Repeatable to 12 credits if content differs. Credit only granted for: PLCY339 or PUAF339. Formerly: PUAF339. Offers students supervised internship placements in federal and international political or public policy organizations.

PLCY 348 Academic Seminar for Interns: State and Local (3) Prerequisite: Permission of PLCY-School of Public Policy. Corequisite: PUAF349. Repeatable to 6 credits if content differs. Credit only granted for: PLCY348 or PUAF348. Formerly: PUAF348. The academic seminar for student interns in PUAF349. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

PLCY 349 Internship in Political Institutions: State and Local (3-6) Prerequisite: Permission of PLCY-School of Public Policy. Corequisite: PUAF348. Repeatable to 12 credits if content differs. Credit only granted for: PLCY349 or PUAF349. Formerly: PUAF349. Offers students supervised internship placements in state and local political or public policy organizations.

PLCY 359 Contemporary Issues in Political Leadership and Participation (3) Prerequisite: Permission of PLCY-School of Public Policy. Repeatable to 9 credits if content differs. Credit only granted for: PLCY359 or PUAF359. Formerly: PUAF359. Special topics in political leadership and participation.

PLCY 368 Internship in Community Service Organizations (3-6) Prerequisite: Permission of PLCY-School of Public Policy. Repeatable to 12 credits if content differs. Credit only granted for: PLCY368 or PUAF368. Formerly: PUAF368. Offers students supervised placements in non-profit community organizations.

PLCY 386 Experiential Learning (3-6) Prerequisite: Permission of PLCY-School of Public Policy. Repeatable to 12 credits if content differs. Credit only granted for: PLCY386 or PUAF386. Formerly: PUAF386.

PLCY 388 Special Topics in Public Policy (1-3) Prerequisite: Permission of PLCY-School of Public Policy. Restriction: Sophomore standing or higher. Repeatable to 6 credits if content differs. Credit only granted for: PLCY388 or PUAF388. Formerly: PUAF388. Advanced special topics focusing on an interdisciplinary topic related to Public Policy.

PLCY 396 Fellowship Program in Political Leadership (2-6) Prerequisite: Permission of PLCY-School of Public Policy. Restriction: Must be enrolled in the full-time fellowship program. Credit only granted for: PLCY396 or PUAF396. Formerly: PUAF396. Individual instruction course.

PLCY 398 Fellowship Program in Political Leadership (3-6) Prerequisite: Permission of PLCY-School of Public Policy. Restriction: Must be enrolled in the full-time fellowship program. Repeatable to 12 credits if content differs. Credit only granted for: PLCY398 or PUAF398. Formerly: PUAF398.

PLCY 399 Directed Study in Public Policy (1-6) Prerequisite: Permission of PLCY-School of Public Policy. Repeatable to 12 credits if content differs. Credit only granted for: PLCY399 or PUAF399. Formerly: PUAF399. Guidance for the advanced student capable on interdisciplinary study on special projects under the supervision of faculty.

PLSC -- Plant Sciences

PLSC 100 Introduction to Horticulture (4) An overview to the art and science of horticulture. Relationships between plant science and plant production, the use of horticultural plants and plant stress as influenced by cultural practices.

PLSC 101 Introductory Crop Science (4) Major crop plants including: anatomy, physiology, morphology, history, use, adaptation, culture, improvement and economic importance.

PLSC 115 How Safe is Your Salad? The Microbiological Safety of Fresh produce (3) Recommended: PLSC100, PLSC101, or BSCI105; or (BSCI170 and BSCI171). As food is produced in larger quantities and made to travel longer distances, keeping our food safe in this day and age is an ever growing challenge. This course will focus on the question of what it takes to grow and maintain safe fruits and vegetables, as food travels along the path from the farm to your fork. Food safety of fresh produce will be discussed from the public health, agricultural, economical and policy perspectives.

PLSC 120 Mushrooms and Molds (3) Students will learn about how essential fungi (mushroom, molds, and alikes) are in this world and how they affect our daily lives. They will learn how fungi interact with animals, plants and other organisms in positive and negative ways. Also, they will study the importance of fungi in biotechnology and food and how they have shaped many societies throughout history.

PLSC 125 Feeding Nine Billion by 2050: Food Security and Crop Protection (3) A big question in global food security is "how can we feed 9 billion people in 2050?" This course will stimulate creative thinking about possible solutions particularly from the crop production perspective. The instructor will introduce the concept of food security and different dimensions of this complex issue, identify major constraints to food security, and discuss scientific approaches that may be used to meet the grand challenge. Emphasis will be placed on topical and controversial issues such as the impact of biofuel production and GM crops on food security, and novel strategies that can enhance crop protection for improving food security.

PLSC 171 Introduction to Urban Forestry (3) Students are taught the basic concepts and principles of urban forestry. They will learn about the role of urban forests and green infrastructure as related to sustainability of local and global environments and communities. Urban forests will be studied from the perspectives of science, community development, landscape management, public policies, and laws.

PLSC 201 Plant Structure and Function (4) Prerequisite: PLSC100; or PLSC101. And CHEM103; or CHEM131. And CHEM132. The relationship between plant structure and function and how the environment influences changes in the physiology to control higher plant growth and development are studied.

PLSC 203 Plants, Genes and Biotechnology (3) Prerequisite: BSCI103 or BSCI105; or (BSCI170 and BSCI171). An overview of the history, genetics, and reproductive mechanisms for agronomic and horticultural plants that examines mechanisms of genetic improvement ranging from traditional plant breeding to tissue culture and genetic engineering. Social and political issues such as germplasm preservation and international intellectual property rights will also be discussed.

PLSC 204 Fundamentals of Agricultural Mechanics (3) Credit only granted for: ENBE200 or PLSC204. Formerly: ENBE200. A comprehensive course that teaches the fundamentals of agricultural related mechanics. Lecture and lab exercises will cover the broad range of topics associated with agricultural mechanics including electricity, plumbing, welding processes, and wood and metal working applications. Emphasis will be given to the design and installation of electrical circuits. It will also include project planning and implementation including development of safety protocols for each area of study and introduction of GPS equipment and software for survey data collection.

PLSC 205 Introduction to Turf Science and Management (4) Credit only granted for: PLSC205 or PLSC305. Formerly: PLSC305. Principals of turf science and culture with emphasis on turfgrass anatomy, morphology, and physiology. The role of cultural interventions in achieving specific aesthetic and functional objectives is examined for multiple turf uses. Pest problems typically encountered in turfgrass management are also covered.

PLSC 226 Plant Diversity (4) Prerequisite: PLSC201; or permission of instructor. Students will learn to identify and understand relationships among major plant families of northeastern North America, especially of the Mid-Atlantic region, through lecture, field, and laboratory study. Characteristics and biogeography of and evolutionary relationships among families are emphasized in lecture. These characteristics will be woven together to provide understanding of the ecological and evolutionary drivers of plant diversity and the history of the field. Sight identification of families, genera, and species and keying skills are stressed in field and laboratory sessions.

PLSC 235 Irrigation and Drainage (3) Credit only granted for: PLSC235 or PLSC489I. Formerly: PLSC489I. An overview of U.S. and state water doctrines and plant water use rates. Irrigation systems for residential and athletic field use will be discussed covering such topics as hydraulics, sprinkler spacing,

pipe selection and sizing, pumps, controllers, valves, and irrigation trouble shooting. Surface and subsurface drainage for turfgrass sites will also be covered.

PLSC 244 Herbaceous Plants (3) Prerequisite: PLSC100 or PLSC101. Credit only granted for: PLSC244 or PLSC489A. Formerly: PLSC489A. Herbaceous plants are integral components of residential and commercial landscapes. Students will become familiar with 250 annual and perennial plants. The emphasis will be on plant management requirements and seasonal variation in the landscape.

PLSC 251 Financial Applications for the Green Industry (3) Credit only granted for: PLSC361 or PLSC251. Formerly: PLSC361. An introduction to the application of financial principles in the Green Industry business sector. Accounting, pricing, and estimating, job cost management and production efficiency are discussed and manifested in Scholarship In Practice exercises, case studies and a business plan project.

PLSC 253 Woody Plants for Mid-Atlantic Landscapes I (3) Prerequisite: PLSC100. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on native deciduous plant materials.

PLSC 254 Woody Plants for Mid-Atlantic Landscape II (3) Prerequisite: PLSC100 and PLSC253; or permission of instructor. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on introduced and evergreen plant materials.

PLSC 255 Landscape Design and Implementation (4) Prerequisite: PLSC253 or PLSC254. Restriction: Must not have completed LARC141; and must not have completed LARC341. Principles of landscape architecture applied to residential and commercial landscaping: informal and formal designs and plan graphics.

PLSC 271 Plant Propagation (3) Prerequisite: PLSC100; or (BSCI170 and BSCI171); or BSCI105. A study of the principles and practices in the propagation of plants.

PLSC 272 Principles of Arboriculture (3) Prerequisite: PLSC100 and PLSC171. Recommended: ENST200. The establishment and maintenance of healthy trees in an urban setting will be studied. Lectures will focus on the environmental constraints to tree development in the city, and the role of physiological processes in regulating tree vigor. Laboratory exercises will cover the unique aspects of urban soils, tree valuation procedures, pruning and training, and supervised climbing.

PLSC 275 Fundamentals of Agricultural Chemistry (3) Prerequisite: CHEM131 and CHEM132. And PLSC100; or PLSC101; or (BSCI160 and BSCI161); or (BSCI170 and BSCI171); or BSCI105; or BSCI106. Restriction: Must not have completed CHEM104 or CHEM105. And must be in a major within the AGNR-Plant Science & Landscape Architecture department; or must be in a major within the AGNR-Animal & Avian Sciences department; or permission of instructor. Credit only granted for: PLSC275, CHEM104, or CHEM105. An in-depth discussion of chemistry targeted to students enrolled in plant and animal management curricula offered in AGNR. Covers the nomenclature and basic functional groups in organic chemistry, secondary plant metabolites, basic tenets of organic agriculture and the creation of genetically-modified plants. The chemistry, handling and usage of agricultural pesticides is also discussed.

PLSC 303 Global Food Systems (3) Prerequisite: BSCI170 and BSCI171; or BSCI105; or students who have taken courses with comparable content may contact the department. An introduction to the global food system and its agricultural, biophysical, and socioeconomic domains. The problems and potentials

for increasing world food supply based on current agronomic knowledge. Emphasis on international aspects of food crop production as its interrelationships with people and the environment in the developing world.

PLSC 305 Introduction to Turf Management (3) Principles of turf culture. Identification and uses of turfgrass species; turfgrass fertilization, cultivation, mowing and establishment; and the identification of turf pests.

PLSC 321 Landscape Structures and Materials (3) Prerequisite: PLSC320. Also offered as: LARC321. Credit only granted for: LARC321 or PLSC321. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

PLSC 388 Honors Thesis Research (3-6) Prerequisite: Must be in the AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

PLSC 389 Internship (1-3) Prerequisite: Permission of AGNR-Plant Science & Landscape Architecture department. Restriction: Junior standing or higher. And must be in Plant Sciences program; or must be in Landscape Architecture program. Repeatable to 6 credits if content differs. Credit will be given for practical work carried out at one or more horticultural, agronomic, landscape industries, botanical gardens, or arboreta under formally arranged internships.

PLSC 398 Seminar (1) Restriction: Senior standing. And must be in Landscape Architecture program; or must be in Plant Sciences program. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.

PLSC 399 Special Problems in Plant Science (1-3) Prerequisite: 12 credits in PLSC courses; and permission of AGNR-Plant Science & Landscape Architecture department. Restriction: Must be in Plant Sciences program. Repeatable to 6 credits. Research projects in Plant Science including field, greenhouse, laboratory, studio and/or library studies. Research is conducted under the direction of a faculty member.

PLSC 400 Plant Physiology (4) Prerequisite: BSCI170 and BSCI171; or BSCI105; or PLSC201. And CHEM231 and CHEM232; or CHEM237; or permission of AGNR-Plant Science & Landscape Architecture department. Also offered as: BSCI442. Credit only granted for: BSCI442 or PLSC400. A survey of plant physiology and development responses and adaptation to the environment.

PLSC 401 Pest Management Strategies for Turfgrass (3) Prerequisite: PLSC305. Interdisciplinary view of weed, disease, and insect management from an agronomy perspective. Plant responses to pest invasion, diagnosis of pest-related disorders, and principles of weed, disease and insect suppression through cultural, biological and chemical means are discussed.

PLSC 402 Sports Turf Management (3) Prerequisite: PLSC305 and PLSC401. Sports turf management, including design, construction, soil modification, soil cultural techniques, pesticide use, fertilization, and specialized equipment.

PLSC 405 Agroecology (3) Prerequisite: At least one course in ecology; or permission of instructor. Recommended: BSCI361 or PLSC471; or any BSCI or ENST ecology course. Credit only granted for: PLSC405 or PLSC605. Additional information: Class will be held on campus, with two day-long field trips to local farms. How can we balance the multiple, and often competing objectives of sustainable

agricultural intensification to promote both agricultural productivity and human wellbeing? The answer to this question requires a transdisciplinary, agroecological perspective. Agroecology is the integrative study of the ecology of the entire food system, encompassing ecological, economic and social dimensions. This course is designed to introduce various topics in agroecology (e.g. organic agriculture, biodiversity, the Farm Bill). We will take an ecosystems approach to the study of agriculture that will enable students to analyze the environmental, social, and economic interconnections within various types of agricultural systems locally and globally.

PLSC 407 Advanced Crop Science (3) Prerequisite: PLSC101. And BSCI170 and BSCI171; or BSCI105. A study of principles of production for forage crops, corn, small grains, rice, millets, sorghums, soybeans and other oil seed crops. Their seed production, processing, distribution and the current federal and state seed control programs for these agronomic crops will also be discussed.

PLSC 410 Commercial Turf Maintenance and Production (3) Prerequisite: PLSC305; or permission of AGNR-Plant Science & Landscape Architecture department. Agronomic programs and practices used in hydroseeding, commercial lawn care, sod production and seed production. Current environmental, regulatory and business management issues confronting the turfgrass industry.

PLSC 415 Diseases of Trees and Shrubs (3) Prerequisite: PLSC100 and PLSC201; or permission of instructor. Credit only granted for: PLSC415 or PLSC489E. Formerly: PLSC489E. Diseases on woody plants commonly planted or native to Mid-Atlantic region. Biology, identification and management of important plant pathogens.

PLSC 420 Principles of Plant Pathology (4) Prerequisite: CHEM131, CHEM132, and PLSC201; or students who have taken courses with comparable content may contact the department. An introduction to the causal agents, nature and management of plant diseases with particular attention paid to economically important diseases of horticultural and agronomic crops.

PLSC 425 Green Roofs and Urban Sustainability (1) Credit only granted for: PLSC425 or PLSC489V. Formerly: PLSC489V. The integration of disciplines associated with sustainability issues. Topics range from plant science to design to policy, all of which can contribute to improving the urban environment.

PLSC 430 Water and Nutrient Planning for the Nursery and Greenhouse Industry (3) Prerequisite: CHEM131 and CHEM132; or ENST200; or permission of instructor. Recommended: PLSC432. Skills will be developed in order to write nutrient management plans for the greenhouse and nursery industry. Completion of this course can lead to professional certification in nutrient planning by the State of Maryland after MDA examinations are passed.

PLSC 432 Greenhouse Crop Production (3) Prerequisite: PLSC201 and PLSC202; and must have completed or be concurrently enrolled in BSCI442. The commercial production and marketing of ornamental plant crops under greenhouse, plastic houses and out-of-door conditions.

PLSC 433 Technology of Fruit and Vegetable Production (4) Prerequisite: PLSC201, NRSC411, PLSC271, and PLSC202; or students who have taken courses with comparable content may contact the department. Corequisite: BSCI442. Recommended: ENST200. Restriction: Junior standing or higher. Credit only granted for: NRSC411 or PLSC433. A critical analysis of research work and application of the principles of plant physiology, chemistry and botany to practical problems in the commercial production of fruit and vegetable crops.

PLSC 452 Environmental Horticulture (3) Prerequisite: PLSC100 or PLSC101; and (PLSC253 and PLSC254). Environmental horticulture principles used in the establishment and maintenance of plant materials in residential and commercial landscapes will be addressed. The effect of soil conditions, environmental factors, and commercial practices will be discussed in relation to the growth and development of newly-installed plant materials. Field diagnostics will be used by students to assess significant problems of plant decline. Environmental sustainability will be combined with current commercial practices of storm water management, nutrient management, and irrigation management to achieve an integrated approach to plant management.

PLSC 453 Weed Science (3) Weed identification, ecology, and control (cultural, mechanical, biological, and chemical methods).

PLSC 460 Application of Knowledge in Plant Sciences (3) Prerequisite: PLSC100 or PLSC101; or permission of instructor. Recommended: ENGL393 and ENST200; and (PLSC389 or PLSC399). Restriction: Senior standing or higher. And must be in a major within AGNR-Plant Science & Landscape Architecture department; or must be in another related major. A capstone course based on interactions with plant science professionals and student-led class discussions. Students will apply their knowledge and experience to practical issues in the discipline, further develop critical thinking ability, and enhance their communication, teamwork, and professional skills. Topics will include nutrient management, integrated pest management, plant interactions with urban and rural ecosystems, planning of public grounds, plant biotechnology, and teaching skills.

PLSC 461 Cultural Management of Nursery and Greenhouse Systems: Substrates (1) Credit only granted for: PLSC461 or PLSC489T. Formerly: PLSC489T. Additional information: Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module. PLSC 461, 462 and 464 will be taught sequentially during the semester. One of three 1-credit modules (PLSC461, PLSC462 and PLSC 464)covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers the composition, handling, physical and chemical properties of substrates and how they should be managed to maximize plant growth.

PLSC 462 Cultural Management of Nursery and Greenhouse Systems; Irrigation (1) Credit only granted for: PLSC462 or PLSC489W. Formerly: PLSC489W. Additional information: Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module. PLSC 461, 462 and 464 will be taught sequentially during the semester. One of three 1-credit modules (PLSC461, PLSC462 and PLSC464) covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers water quantity and quality issues, water supply (basic hydraulics), irrigation system design and irrigation system evaluation (performance) to maximize water application efficiency.

PLSC 464 Cultural Management of Nursery and Greenhouse Systems: Nutrients (1) Credit only granted for: PLSC464 or PLSC489Z. Formerly: PLSC489Z. Additional information: Course material is delivered primarily online, but a four hour face-to-face lecture/lab will be held at the end of the module. PLSC 461, 462 and 464 will be taught sequentially during the semester. One of three 1-credit modules (PLSC461, PLSC462 and PLSC464) covering the management techniques used in the intensive culture of plants in commercial operations. Specifically, this module covers the basics of fertilization, different fertilization strategies and nutrient use and efficiency, to optimize nutrient application practices in intensive plant production systems.

PLSC 471 Forest Ecology (3) Prerequisite: PLSC201; or (BSCI160 and BSCI161); or BSCI106. An understanding of the forest ecosystem, its structure and the processes that regulate it are provided. It also

considers changes that occur in forests, the interaction of environment and genetics in promoting ecosystem sustainability, and the role of human influences on urban forest ecosystems.

PLSC 472 Capstone-Urban Forest Project Management (3) Prerequisite: ENST200, PLSC272, and PLSC471. Restriction: Senior standing or higher; and must be in a major within AGNR-Plant Science & Landscape Architecture department. Students will synthesize the ideas and information learned from their studies in urban forestry. Working in teams, students will complete projects involving real-world issues. Student projects will use scientific, social, political and ethical considerations in an interdisciplinary approach to provide solutions to their problem.

PLSC 473 Woody Plant Physiology (3) Prerequisite: BSCI442 or PLSC201; or students who have taken courses with comparable content may contact the department. Concentration is placed on physiological processes important to woody plant growth and development. Emphasis will be placed on current concepts and theories of how woody plants grow and develop, and the critical assessment of current research in woody plant physiology. Course readings will include textbook assignments and selected papers from the current scientific literature.

PLSC 475 Applied Forestry Practices (3) Prerequisite: ENST200. And ENST360; or PLSC471. Also offered as: ENST406. Credit only granted for: ENST406 or PLSC475. Focuses on the applied dynamics of a set of forest practices such as management, silviculture, measurement and inventory, preparation of a management plan, etc, within the urban/rural interface. Several field trips are included to gain hands-on experience.

PLSC 480 Urban Ecology (3) Prerequisite: PLSC471, ENST360, or BSCI363; or other coursework/experience considered for instructor permission. Additional information: Class will be held both on campus and at other locations such as the U.S. Botanic Garden, local parks, and urban and suburban locations off campus. Cities are rapidly increasing in number and size across the globe, transforming local ecosystems. This course examines urban environments as coupled social-ecological systems at multiple scales, from streets and parks to urban landscapes patterns and global patterns of biodiversity. Ecological principles are applied in the urban context, including habitats, biodiversity, ecological processes, and ecosystem services of urban environments, with applications to problems in urban land management, decision-making and design.

PLSC 481 Vegetation Assessment and Analysis (2) Prerequisite: PLSC100; or (BSCI160 and BSCI161); or BSCI106; or permission of instructor. Recommended: PLSC201, BSCI360, PLSC226, or PLSC471. An overview of vegetation assessment through the collection of data in the field (e.g. plots and transects) and the analysis of existing data and remotely detected images (e.g. Aerial photographs and GIS layers).

PLSC 489 Special Topics in Plant Science (1-3) Repeatable to 6 credits if content differs. A lecture and or laboratory series organized to study a selected phase of Plant Science not covered by existing courses. Credit according to time scheduled and organization of the course.

PORT -- Portuguese

PORT 104 Intensive Elementary Portuguese (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.

PORT 204 Intensive Intermediate Portuguese (4) Prerequisite: PORT104; or must have appropriate Foreign Language Placement Test (FLPT) score. Covers speaking, reading, writing, listening, and culture of Portuguese-speaking world.

PORT 205 Intermediate Reading and Conversation in Portuguese I (3) Prerequisite: PORT204; or permission of ARHU-School of Languages, Literatures, and Cultures department. Development of spoken Portuguese at intermediate level based on written assignments and exams on readings in a variety of genres.

PORT 207 Intermediate Reading and Conversation in Portuguese II (3) Prerequisite: PORT205; or students who have taken courses with comparable content may contact the department. Restriction: Not open to native/fluent speakers of Portuguese. Advanced practice of oral and written Portuguese. Reading and discussions of texts, review of grammar, and vocabulary practice.

PORT 222 Cannibals, Savages and Carnivalization: The Making of Brazilian National Culture (3) Credit only granted for: PORT222 or PORT228C. Formerly: PORT228C. Introduction to the main concepts, cultural movements, and ideas that have shaped Brazilian modern culture. Exploring some of the ways in which cultural cannibalism, savagery, and carnivalization have been deployed as symbolic frameworks in the construction of a national identity through analyses of film, literature, music and visual arts. Taught in English.

PORT 223 Portuguese Culture (3) Political, social, intellectual, and literary forces shaping culture of contemporary Portugal from the formation of the country to the present. Taught in English.

PORT 224 Brazilian Culture (3) Pluralistic formation of Brazilian culture, based on European, African and Indian contributions. Lectures, discussions, slides, video, and film presentations. Taught in English.

PORT 228 Selected Topics in Latin American Literature and Society (3-6) Repeatable to 6 credits if content differs. Also offered as: SPAN228. Credit only granted for: PORT228 or SPAN228. Variable cultural studies topics on literature and society in contemporary Latin America. Taught in English.

PORT 229 Selected Topics in Latin American Culture (1-3) Repeatable to 9 credits if content differs. Varied topics in Latin America culture.

PORT 230 Brazilian Portuguese through Film (3) Prerequisite: PORT205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Intermediate practice of oral and written Portuguese through discussion of Brazilian movies, along with grammar review and vocabulary exercises. Taught in Portuguese.

PORT 231 Introduction to the Literatures of the Portuguese Language (3) Prerequisite: PORT205; or permission of ARHU-School of Languages, Literatures, and Cultures department. Combines studies of Brazilian and Portuguese literatures, along with the examination of literary trends, concepts and terms to texts and excerpts of longer works, chosen for their cultural, historical and stylistic interest. Taught in Portuguese.

PORT 234 Issues in Latin American Studies I (3) Also offered as: SPAN234, LASC234. Credit only granted for: PORT234, or SPAN234, or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

PORT 235 Issues in Latin American Studies II (3) Also offered as: SPAN235, LASC235. Credit only granted for: PORT235, or SPAN235, or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of PORT/LASC/SPAN 234, but completion of 234 is not a prerequisite. Taught in English.

PORT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PORT 320 Survey of Portuguese Literature (3) Portuguese poetry, fiction and drama from the Twelfth Century to the present. Taught in English.

PORT 332 Brazilian Cinema (3) Also offered as: FILM332. Credit only granted for: PORT332, FILM332, or PORT378. Formerly: PORT378. Brazilian films from the late 1950s to the present with a special view to the relationship between cinema, society, historical dates, and social changes in Brazil. Taught in English.

PORT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PORT 386 Experiential Learning (3-6) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department; and junior standing or higher.

PORT 388 Special Topics in Brazilian Studies (3) Repeatable to 6 credits if content differs. Exposes students to textual, visual and aural products to explore how Brazil has been shaped from within and abroad. Focuses on the broad meaning and impact on Brazilian culture and social formation. Taught in English.

PORT 399 Independent Study in Portuguese (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Specific readings in literature under the supervision of a faculty member of the department.

PORT 405 Portuguese for Spanish Speakers (3) Restriction: Must have native or acquired fluency in Spanish. Intensive basic grammar, reading and auditory comprehension. Native or acquired fluency in Spanish required.

PORT 408 Special Topics in Portuguese Literature (3) Repeatable to 6 credits if content differs. Major themes and literary developments from the late 18th century to the present.

PORT 409 Special Topics in Brazilian Literature (3-6) Major themes and literary development from the late eighteenth century to the present. Specific topic to be announced each time the course is offered.

PORT 478 Themes and Movements of Luso-Brazilian Literature in Translation (3) Repeatable to 6 credits if content differs. A study of specific themes and movements either in Portuguese or Brazilian literature, as announced. Designed for students for whom the literatures would be inaccessible in Portuguese.

PORT 480 Machado de Assis (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Fiction of Machado de Assis covering his romantic and realistic periods.

PSYC -- Psychology

PSYC 100 Introduction to Psychology (3) A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution.

PSYC 111 The Psychology of Unethical Conduct (1) Additional information: Online and self-paced course open to all majors. An exploration of the University of Maryland's 10 Principles of Ethical and Responsible Conduct (http://www.responsibleconduct.umd.edu) and the reasons why unethical conduct might occur. Covers a broad range of psychological theories and research with the focus on applying the science for a more ethical life, campus and community.

PSYC 123 The Psychology of Getting Hired (1) Designed to introduce students to the science behind the hiring process and to prepare individuals with the academic and practical training required. Together we will explore psychological principles that influence the selection process and how individuals can apply them for the competitive edge that makes others Fear the Turtle!

PSYC 138 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PSYC 200 Statistical Methods in Psychology (3) Prerequisite: PSYC100. And 1 course with a minimum grade of C- from (STAT100, MATH107, MATH111, MATH120, MATH130, MATH140); or must have completed MATH220 with a minimum grade of C-. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). A basic introduction to quantitative methods used in psychological research.

PSYC 206 Developmental Biopsychology (3) Prerequisite: PSYC100. Biological basis of behavioral development in relation to genetic, constitutional, anatomical, physiological, and environmental factors. Emphasis upon both phylogenetic and ontogenetic research findings in biological psychology.

PSYC 210 Personality and Temperament: Developmental Origins, Brain Bases, and Clinical Implications (3) Prerequisite: PSYC100. Restriction: Must be in Psychology program. What is known about what makes each of us unique? How do these differences contribute to enduring differences in health & wealth? We will review recent research in humans and non-humans aimed at understanding the psychological & biological mechanisms underlying stable individual differences in personality. We will discuss the phylogenetic and ontogenetic origins of temperament, measurement issues, fundamental dimensions of personality across the lifespan, neurobiological substrates of temperament/personality, mechanisms contributing to stability and change, implications for psychopathology, & broader implications for public/macroeconomic policy.

PSYC 221 Social Psychology (3) Prerequisite: PSYC100. The influence of social factors on the individual and on interpersonal behavior. Includes topics such as conformity, attitude change, person perception, interpersonal attraction, and group behavior.

PSYC 238 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PSYC 300 Research Methods in Psychology Laboratory (4) Prerequisite: PSYC200. Restriction: Must be in Psychology program. Credit only granted for: PSYC300 or PSYC309R. Formerly: PSYC309R. A general introduction and overview to the fundamental theoretical, conceptual, and practical issues in psychological research in both the laboratory and the field.

PSYC 301 Biological Basis of Behavior (3) Prerequisite: PSYC100. And BSCI170 and BSCI171; or BSCI105. An introduction to the anatomical structures and physiological processes that determine behavior. After a study of the basic functioning of the nervous system, the course will examine the acquisition and processing of sensory information, the neural control of movement, and the biological bases of complex behaviors such as sleep, learning, memory, sex, language, and addiction.

PSYC 302 Fundamentals of Learning and Behavior (3) Prerequisite: PSYC100. And BSCI170 and BSCI171; or BSCI105. Restriction: Restricted to psychology majors during the registration period. All other majors will be placed on a hold file. Credit only granted for: PSYC309F or PSYC302. Formerly: PSYC309F. Overview of the fundamental types of learning that occur without formal instruction. The course covers fundamentals of classical and instrumental conditioning as studied in a variety of species in addition to more modern theories of learning. We will then explore how these principles influence diverse processes such as memory, attention, extinction, categorization, motivation, and in some cases, how they are implemented in the brain and disrupted in disease.

PSYC 303 Professional Development for Psychology Majors (1) Prerequisite: PSYC100; and must have completed 3 additional credits in PSYC courses. Or permission of BSOS-Psychology department. Restriction: Must be in a major within BSOS-Psychology department. Credit only granted for: PSYC309C or PSYC303. Formerly: PSYC309C. An investigation of various career and graduate school opportunities available to psychology majors. Students will learn about a wide range of career fields, will learn how to utilize available resources to pursue career goals, and will take steps to advance their professional identity and development.

PSYC 309 Special Topics in Psychology (1-3) Prerequisite: PSYC100. Restriction: Must be in Psychology program; and sophomore standing or higher. Repeatable to 6 credits if content differs. Topics of current interest which represent extensions of or additions to topics covered in more general topical courses.

PSYC 310 Perception (3) Prerequisite: PSYC100. And CHEM103; or PHYS121; or (BSCI160 and BSCI161); or (BSCI170 and BSCI171); or BSCI105; or BSCI106. Restriction: Must not have completed PSYC410. A survey of phenomena and theories of perception including psychological, anatomical, physiological, and environmental factors important in determining how we perceive the world. Historical background will be examined as well as contemporary research.

PSYC 318 Community Interventions: Theory and Research (3) Prerequisite: PSYC100. Restriction: Must be in one of the following programs (Women's Studies; Psychology) ; and permission of BSOS-Psychology department. Survey and critical examination of a problem in the community and related interventions. Analysis of theory and research relevant to the problem. Historical and current trends discussed. A student who has completed PSYC309 must have permission of the department in order to register for PSYC318.

PSYC 319 Community Interventions: Service Learning (3) Prerequisite: PSYC318. Restriction: Must be in one of the following programs (Women's Studies; Psychology) ; and permission of BSOS-Psychology department. Apply knowledge gained in PSYC318 to provide interventions to individuals

dealing with a community problem. Critical analysis of interventions and related research. Ethical and cultural considerations in the provision of services are addressed.

PSYC 330 Child Psychopathology (3) Prerequisite: PSYC100. Restriction: Must be in Psychology program. Credit only granted for: PSYC309B or PSYC330. Formerly: PSYC309B. Etiology, diagnosis, prevention and treatment of emotional disorders of childhood and adolescence.

PSYC 332 Psychology of Human Sexuality (3) Prerequisite: PSYC100. A survey of historical and contemporary psychological views on a wide variety of sexual behaviors; theory and research bearing on the relationship between life span psychological development, psychological functioning, interpersonal processes and sexual behaviors; political and social issues involved in current sexual norms and practices.

PSYC 334 Psychology of Interpersonal Relationships (3) Prerequisite: PSYC100. Research, theory and their practical applications pertaining to the development, maintenance and dissolution of human relationships. Processes critical to successful relating (e.g., communication, bargaining, conflict resolution), and issues associated with troubled dyadic relations with equal partners (e.g., jealousy, spouse abuse, divorce).

PSYC 336 Psychology of Women (3) Prerequisite: PSYC100. Also offered as: WMST336. Credit only granted for: PSYC336 or WMST336. A survey of the biology, life span development, socialization, personality, mental health, and special issues of women.

PSYC 338 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PSYC 341 Introduction to Memory and Cognition (3) Prerequisite: PSYC200 and PSYC300. An introduction to the basic concepts of cognitive psychology, the scientific study of mental processes. Topics will include perception, attention, memory, reasoning, and language, with an emphasis on how findings from cognitive psychology can inform real-life thinking (e.g., memory strategies for studying, pitfalls of multitasking, and how/why our memories can fail us).

PSYC 353 Adult Psychopathology (3) Prerequisite: PSYC100. Restriction: Must be in Psychology program. The nature, diagnosis, etiology, and treatment of mental disorders.

PSYC 354 Cross-Cultural Psychology (3) Prerequisite: PSYC100. Cultural components in theory and research in personality, social, and community psychology. Interplay of individual, ethnic, and cultural factors in psychosocial growth and well-being, cross-cultural and cross-ethnic communication, and counseling and psychotherapeutic interactions.

PSYC 355 Developmental Psychology (3) Prerequisite: PSYC100. Survey of research and theory of psychological development from conception through childhood, stressing physiological, conceptual and behavioral changes, and the social and biological context in which individuals develop.

PSYC 356 Psychology of Adolescence (3) Prerequisite: PSYC100. A description of adolescent development based on research and theory interrelating psychological, intellectual, and social changes during the teen years and the systems dealing with those changes.

PSYC 361 Survey of Industrial and Organizational Psychology (3) Prerequisite: PSYC100. A general survey of the field of industrial organizational psychology including such topics as organizational entry (recruitment, selection, training, socialization); organizational psychology (motivation, leadership, job

attitudes); and productivity in the work place (performance appraisal, absenteeism, turnover). The role that the larger environment plays in influencing work behaviors and work attitudes.

PSYC 362 Introduction to Negotiation (3) Prerequisite: PSYC221 or PSYC361; or permission of BSOS-Psychology department. Restriction: Must be in Psychology program. Credit only granted for: PSYC309F or PSYC362. Formerly: PSYC309F. Additional information: Restricted to PSYC majors during preregistration. Overview of the field of negotiation and the social-psychological and contextual factors that facilitate and inhibit successful negotiation agreements. Students will engage in a variety of negotiation exercises individually and as a team.

PSYC 389 Experiential Learning (1-6) Prerequisite: PSYC100; and permission of BSOS-Psychology department; and 9 credits in PSYC courses. Restriction: Minimum cumulative GPA of 2.8; and must have earned a minimum 3.0 Psychology GPA. Formerly: PSYC386. Internship in psychology-related fields.

PSYC 401 Biological Bases of Behavior Laboratory (4) Prerequisite: PSYC300; and (PSYC301 or BSCI353). Restriction: Permission of instructor; and must be in Psychology program; and must have earned a minimum of 85 credits. A laboratory course to introduce students to some of the basic physiological and anatomical techniques of contemporary neuroscience. Exercises look at specific neurons or groups of neurons and how they control such simple behaviors as swimming, prey capture, and species recognition. The lab exercises use living invertebrates and cold-blooded vertebrates.

PSYC 402 Neural Systems and Behavior (3) Prerequisite: PSYC301. Additional information: Priority is given to PSYC majors. Research on the physiological basis of behavior, including considerations of sensory phenomenon, motor coordination, emotion, drives, and the neurological basis of memory.

PSYC 403 Animal Behavior (3) Prerequisite: PSYC301. Reviews the theoretical framework underlying the study of animal behavior. The genetic, hormonal and physiological basis of behavior, and the relation to ecological and evolutionary processes will be discussed using examples that range from invertebrate animals to humans.

PSYC 404 Introduction to Behavioral Pharmacology (3) Prerequisite: PSYC301. Restriction: Must be in Psychology program. Theoretical viewpoints on the interaction of drugs and behavior. Basic principles of pharmacology, the effects of drugs on various behaviors, experimental analysis of drug dependence and abuse, and neuropharmacology and behavior.

PSYC 406 Neuroethology (3) Prerequisite: PSYC301. Restriction: Must be in Psychology program. A merger between the disciplines of neuroscience and ethology (animal behavior) studies the behavioral functions of nervous systems using a comparative and evolutionary approach. Students will learn how the nervous system controls behavioral patterns in a variety of different organisms ranging from insects to mammals.

PSYC 407 Behavioral Neurobiology Laboratory (4) Prerequisite: PSYC300 and PSYC301; and permission of instructor. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Laboratory exercises introducing concepts and techniques of behavioral neurobiology. Activities emphasize design of neurobiology experiments, hands-on experience with behavioral and neurobiological techniques, data collection, and analysis of the results. Most exercises use living animals.

PSYC 409 Topics in Neurosciences Seminar (1) Restriction: Permission of BSOS-Psychology department; and junior standing or higher. Repeatable to 4 credits if content differs. Current research in neurosciences will be presented, read, and discussed. Emphasis will change each term.

PSYC 410 Experimental Psychology: Sensory Processes I (4) Prerequisite: PSYC300. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits; and permission of BSOS-Psychology department. A systematic survey of the content, models, and methodology of sensory and perceptual research.

PSYC 411 Introduction to Functional Magnetic Resonance Imaging (3) Prerequisite: PSYC200, PSYC301, and PSYC300. Restriction: Must be in a major within BSOS-Psychology department. Credit only granted for: PSYC309N or PSYC411. Formerly: PSYC309N. An introduction to functional magnetic resonance imaging (fMRI). Students will be taught about formulating testable hypotheses with fMRI, utilizing basic methods in fMRI studies, and understanding existing limitations of fMRI studies in the literature.

PSYC 413 Developmental Cognitive/Social Neuroscience (3) Prerequisite: PSYC355 or PSYC301; or permission of instructor. Restriction: Restricted to psychology majors and neuroscience minors during the registration period. All other students can reserve a position on the hold file, and will be offered a seat on a space-available basis. Credit only granted for: PSYC309D, PSYC309H, or PSYC413. Formerly: PSYC309D, PSYC309H. Developmental cognitive/social neuroscience is the study of how the brain underlies the acquisition, refinement, and maintenance of complex cognitive and social abilities. The goal of this course is to gain an understanding of current research, methods, and theories in developmental cognitive/social neuroscience through lecture and discussion.

PSYC 414 Science of Sleep and Biological Rhythms (3) Prerequisite: PSYC100 and PSYC301; or permission of instructor. Restriction: Must be in a major within the BSOS-Psychology department; and restricted to psychology majors during the registration period. All other majors will be placed on a hold file. A study of the behavioral neurobiology of biological rhythms and sleep including behavioral and social contexts relevant to chronobiology and sleep science. Current scientific research on the role of the central nervous system will be a major focus.

PSYC 416 Development of Attachment in Infancy and Childhood: Theory, Research, Methods, and Clinical Implications (3) Prerequisite: PSYC355; or permission of instructor. Restriction: Must be in a major within the BSOS-Psychology department. Credit only granted for: PSYC309J or PSYC416. Formerly: PSYC309J. Overview of the development of attachment during infancy and childhood, examining theory, research methods, research findings, and clinical implications. Students will observe videos of attachment assessments, lead class discussion of readings, make class presentations, and complete writing assignments.

PSYC 420 Experimental Psychology: Social Psychology Laboratory (4) Prerequisite: PSYC300 and PSYC221. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. A laboratory course to provide a basic understanding of experimental method in social psychology and experience in conducting research on social processes.

PSYC 423 Advanced Social Psychology (3) Prerequisite: PSYC420. A systematic review of research and points of view in regard to major problems in the field of social psychology.

PSYC 424 Communication and Persuasion (3) Prerequisite: PSYC221 and PSYC200. Effect of social communication upon behavior and attitudes. Theory and research concerning attitude change and social influence.

PSYC 425 Psychology and Law (3) Prerequisite: PSYC100, PSYC200, and PSYC300. Restriction: Must be in Psychology program. Credit only granted for: PSYC309K, PSYC325, or PSYC425. Formerly:

PSYC309K. An introduction to the intersection of psychology and the criminal justice sytem, known as the field of legal psychology. The material covered will span the course of the criminal justice process and examine each aspect from a psychological perspective beginning with profiling and moving on to eyewitness memory and judgements through perpetrator memories and interrogation techniques. These apsects will be evaluated with a research lens as well as an applied outlook.

PSYC 432 Counseling Psychology: Theories, Research, and Practice (3) Prerequisite: PSYC200. Analysis of research and intervention strategies developed and used by counseling psychologists. Historical and current trends in content and methodology.

PSYC 433 Basic Helping Skills: Research and Practice (4) Prerequisite: PSYC300; and (PSYC434, PSYC334, PSYC353, PSYC435, PSYC436, or PSYC432). Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Theories and research regarding effective helping skills. Students will practice helping skills with each other and will conduct research projects evaluating their helping skills. Students should be willing to talk about personal issues in class. Because of the participatory nature of this class, attendance normally will be included in the computation of grades.

PSYC 435 Theories of Personality and Psychotherapy (3) Prerequisite: PSYC200. Major theories of personality and research methods and findings relevant to those theories.

PSYC 436 Introduction to Clinical Psychology: From Science to Practice (3) Prerequisite: PSYC300. Critical analysis of clinical psychology, with particular emphasis on current developments and trends.

PSYC 437 The Assessment and Treatment of Addictive Behaviors (3) Prerequisite: PSYC100; and 9 credits in PSYC courses. Credit only granted for: PSYC309E (taken in the Winter Term) or PSCY437. Formerly: PSYC309E. Explores the current research in assessment and treatment of addictive behaviors. Topics may include addictions in the areas of alcohol, drugs, nicotine, gambling, and eating.

PSYC 438 Special Topics in Study Abroad IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

PSYC 440 Experimental Psychology: Cognitive Processes (4) Prerequisite: PSYC341 and PSYC300. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. A survey of the content, models, and methods in cognitive psychology with an emphasis on auditory and visual pattern recognition, information processing, attention, memory, learning, problem solving, and language.

PSYC 442 Psychology of Language (3) Prerequisite: PSYC300 and PSYC341. Restriction: Must be in Psychology program. Introductory survey of the psychology of language, focusing on the cognitive processes that enable us to produce and understand language. Topics include speech perception, speech production, syntactic processing, language development, language disorders, and the brain bases of language.

PSYC 443 Thinking and Problem Solving (3) Prerequisite: PSYC341 and PSYC300. Restriction: Must be in Psychology program. Historical development, current theory and data, and research methods in problem solving. Formal problem solving theory and computer models of thinking and human problem-solving behavior. The uses of strategies to improve students' own thinking processes and problem-solving behavior.

PSYC 444 Cyberpsychology: The Psychology of Human/Computer Interactions (3) Prerequisite: PSYC200. Credit only granted for: PSYC309E or PSYC444. Formerly: PSYC309E. Explores traditional

psychological processes in the rapidly changing world of computer and internet technologies. Students will address how the use of computers impacts many of the major topics in psychology.

PSYC 445 The Psychology of Video Games and Entertainment (3) Prerequisite: PSYC200. Restriction: Must be in Psychology program; or permission of BSOS-Psychology department. Credit only granted for: PSYC309V or PSYC445. Formerly: PSYC309V. An exploration of the diverse elements and theories in the psychology of video games and entertainment. The history and taxonomy of video games, cognitive and affective elements, virtual reality and social presence, video game violence, and educational and ethical issues will be covered.

PSYC 450 Field Research in Organizational Psychology (4) Prerequisite: PSYC300 and PSYC361. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Methods of field research applicable to organizational settings are examined, including field experiments and quasi-experiments, observation, interviewing, surveys, content analysis, and various forms of qualitative inquiry.

PSYC 455 Cognitive Development (3) Prerequisite: PSYC300; and PSYC355. Or permission of instructor. Restriction: Must be in Psychology program. Theory and research on cognition from a developmental perspective. This discussion-based seminar will emphasize readings on infancy through early childhood. Topics will include general abilities such as memory and categorization, as well as children's emerging knowledge about the physical and social worlds.

PSYC 456 Research Methods in Developmental Psychology Laboratory (4) Prerequisite: PSYC300; and permission of BSOS-Psychology department. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. A presentation of major research designs used in developmental psychology and of the methodology used in developmental research, such as observational research, program evaluation, and laboratory experimentation.

PSYC 457 Consensual Qualitative Research Methods Laboratory (4) Prerequisite: PSYC200 and PSYC300; and permission of BSOS-Psychology department. Restriction: Must be in Psychology program; and must have earned a minimum of 85 credits. Credit only granted for: PSYC457 or PSYC498H (taken in Fall 2010 or Fall 2011). Formerly: PSYC498H. An exploration of philosophy of science and methods involved in qualitative research methods in counseling psychology, along with a comparison to quantitative research methods. The laboratory component involves conducting a qualitative study, including reviewing the literature, designing an interview protocol, training to conduct interviews, conducting interviews, analyzing the data, and writing a manuscript.

PSYC 460 Psychological Foundations of Personnel Selection and Training (3) Prerequisite: PSYC361 and PSYC200. An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organizational analysis; organizational choice; development of predictors; evaluation of instructional and training systems; criteria for performance evaluation, promotion and training.

PSYC 464 Psychology of Leaders in Work Organizations (3) Prerequisite: PSYC200 and PSYC361. The psychological assumptions and implications of various theories of management and leadership. Selections and training; development of careers; influence processes; change of managerial behavior; and the impact of the larger environment, nature of product or service, and organization structure on managerial behavior.

PSYC 468 Field Experience and Special Assignments in Honors (1-3) Prerequisite: Must have permission of supervisor and honors faculty. Restriction: Permission of BSOS-Psychology department. Repeatable to 6 credits. An individual experience arranged by the honors student and his or her supervisor. A proposal submitted to the honors faculty in the semester preceding registration for the course should state the activities anticipated and the method of evaluation.

PSYC 469 Honors Thesis Proposal Preparation (3) Restriction: Permission of BSOS-Psychology department. Repeatable to 3 credits. Development of honors thesis proposal by preliminary research and literature review. Presentation of formal proposal to the thesis committee.

PSYC 478 Independent Study in Psychology (1-3) Restriction: Permission of BSOS-Psychology department; and must have earned a minimum of 9 credits in Psychology; and must have earned a minimum GPA of 3.0 in Psychology; and minimum cumulative GPA of 2.8. Repeatable to 9 credits.

PSYC 479 Special Research Problems in Psychology (1-3) Restriction: Permission of BSOS-Psychology department; and must have earned a minimum of 9 credits in Psychology; and must have earned a minimum GPA of 3.0 in Psychology; and minimum cumulative GPA of 2.8. Repeatable to 9 credits.

PSYC 488 Advanced Psychology I (Honors) (3) Prerequisite: PSYC200. Restriction: Permission of BSOS-Psychology department. Seminar covering topics in sensation, perception, learning, and motivation.

PSYC 489 Advanced Special Topics in Psychology (3) Prerequisite: PSYC300. Repeatable to 9 credits if content differs. Treatment of a specialized topic in psychology.

PSYC 498 Advanced Psychology II (Honors) (3) Prerequisite: PSYC488; or permission of BSOS-Psychology department. Seminar covering topics in measurement, social processes, developmental processes and other subject matter of current interest.

PSYC 499 Honors Thesis Research (3) Prerequisite: PSYC469; and must have permission of thesis advisor.

RDEV -- Real Estate Development

RDEV 250 People, Planet, and Profit: Building Sustainable Places (3) Also offered as: ARCH271. Credit only granted for: ARCH271 or RDEV250. An introduction to building communities, commonly referred to as real estate development and involving multiple professions and disciplines, including Architecture and Urban Design, Community Planning, Historic Preservation, Landscape Architecture, Civil Engineering, Law, Finance and Accounting, that have to come together to build more sustainable places for the future by emphasizing the quadruple bottom line of: (1) financial viability, (2)environmental sensitivity, (3) social/cultural responsibility and (4) sustainable design. The course will provide students with an understanding of the fundamental principles and processes of these disciplines and examine the intersections between them. Students will learn through field studies, lecture, discussion, presentations and interactions with multiple professionals

RDEV 270 Tax and Accounting for Real Estate Development (3) Restriction: Permission of ARCH-Real Estate Development; and must not be in a major in the Robert H. Smith School of Business; and must not have completed BMGT210, BMGT220, or BMGT221. An understanding of key tax and

accounting principles and how they impact real estate development for students in the minor in real estate development is the purpose of this course. This course is geared for science, arts and humanities students who otherwise in their major would not take an accounting course as part of their major.

RDEV 350 Real Estate Development: Introduction to Principles, Process, and Practice (3) Prerequisite: Must have completed or be concurrently enrolled in RDEV250. Restriction: Permission of ARCH-Real Estate Development. Credit only granted for: RDEV150 or RDEV350. Formerly: RDEV150. An introduction to the basic principles of real estate development: How real estate and communities get built and how value is created. The emphasis is on entrepreneurship and an experiential learning approach to the entrepreneurial real estate development process, principles, and practice.

RDEV 450 Foundations of Real Estate Finance and Investment (3) Prerequisite: Must have completed or be concurrently enrolled in RDEV250. And RDEV270; or an approved accounting course. And must have completed or be concurrently enrolled in RDEV350. Restriction: Permission of ARCH-Real Estate Development. Real Estate Finance and Investment addresses how real estate value is established, the fundamental foundations of the time value of money, as well as more real estate specific applications of return on investment, net operating income, the components of a real estate sources and uses statement, sources of real estate equity and debt financing, commonly used debt ratios and equity returns in real estate, as well as concepts of sensitivity analysis and exit strategies.

RELS -- Religious Studies

RELS 120 Islamic Civilization (3) Also offered as: HIST120. Credit only granted for: HIST120 or RELS120. Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.

RELS 170 Greek and Roman Mythology (3) Also offered as: CLAS170. Credit only granted for: CLAS170 or RELS170. Additional information: This course cannot be taken for language credit. An introduction to the mythology of ancient Greece and Rome. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism. Taught in English.

RELS 216 What is Religion? (3) Credit only granted for: HIST216, or RELS216. Formerly: HIST216. What is religion, and what approaches best allow us to understand it? Students will explore a variety of approaches to religion (possibly including sociology, psychology, phenomenology, gender studies, and cognitive approaches, among others) in the course of exploring five to eight major religious traditions. Close attention to religious diversity will provide students with a context for asking what really counts as "religion" and why.

RELS 219 Special Topics in Religious Studies (3) Repeatable to 9 credits if content differs. Special topics in Religious Studies

RELS 236 Philosophy of Religion (3) Also offered as: PHIL236. Credit only granted for: PHIL236 or RELS236. A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.

RELS 250 Fundamental Concepts of Judaism (3) Also offered as: JWST250, PHIL234. Credit only granted for: JWST250, PHIL234, or RELS250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

RELS 264 Introduction to the New Testament (3) A historical and literary introduction to the New Testament focusing on the context of the authors and the development of earliest Christianity.

RELS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

RELS 289 New Explorations in Religious Studies (3) Investigation of critical and innovative responses in Religious Studies. Although the topic will vary, the course will encourage intellectual exploration by students of fundamental problems and critical methods.

RELS 319 Special Topics in Religious Studies (1-3) Repeatable to 6 credits if content differs. Special topics in the study of religious history, literature, culture, and thought.

RELS 340 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3) Also offered as: HIST330. Credit only granted for: HIST330 or RELS340. From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.

RELS 341 Europe in the High Middle Ages: 1000-1500 (3) Also offered as: HIST331. Credit only granted for: HIST331 or RELS341. Medieval civilization in the 11th through 15th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture, and political theory prior to the Renaissance.

RELS 342 Renaissance Europe (3) Prerequisite: HIST112 or HIST111; or permission of instructor required. Also offered as: HIST332. Credit only granted for: HIST332 or RELS342. Intellectual developments in Italy and Northern Europe from 1300 to 1550 and their influence on the arts and religion; social and economics trends, including the rise of the commercial economy in cities; the family and the role of women in society; expansion of Europe overseas and the beginnings of colonization; emergence of the state and consequent changes in political theory.

RELS 343 The European Reformations (3) Prerequisite: HIST112 or HIST111; or permission of instructor. Also offered as: HIST333. Credit only granted for: HIST333 or RELS343. Examination of developments in European religion between 1450 and 1700; the late-medieval Church and its critics; rise of Protestant thought in Germany and its spread throughout Europe; reform efforts in the Catholic Church; religious wars and violence and their impact on state and society; consequences of religious reform in society and its impact on the family and women.

RELS 346 History of Religion in America (3) Prerequisite: HIST255, HIST211, HIST156, HIST254, HIST213, HIST157, or HIST210; or permission of instructor. Also offered as: HIST306. Credit only granted for: HIST306 or RELS346. A history of religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.

RELS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

RELS 370 Ancient Greek Religion: Gods, Myths, Temples (3) Also offered as: CLAS330. Credit only granted for: CLAS330 or RELS370. Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.

RELS 371 Roman Religion: From Jupiter to Jesus (3) Also offered as: CLAS331. Credit only granted for: CLAS331 or RELS371. Survey of the major institutions of Roman state and private religion and of the diverse religions, including Judaism and Christianity, practiced in the Roman empire.

RELS 384 Anthropology of Religion (3) Prerequisite: ANTH260; or permission of instructor. Restriction: Must not have completed ANTH364. Also offered as: ANTH364. Credit only granted for: ANTH364, ANTH688R, or RELS384. Comparative study of religion in social, cultural, polilitical, and economic context. Combines the history of schools of interpretation with a survey of theoretical alternatives and a focus on selected case studies.

RELS 400 Methods and Theories in the Study of Religion (3) Also offered as: RELS600. Credit only granted for: RELS400, RELS419T,RELS600, or RELS619T. Formerly: RELS419T. An exploration of scholarly approaches to the study of religion. The modern history of the secular study of religion, social dynamics, textual formations, and ritual practices.

RELS 419 Advanced Topics in Religious Studies (3) Recommended: RELS216. Repeatable to 9 credits if content differs. The contemporary study of religion in which topics may address specific religious traditions, regional or historical developments, or methodological and theoretical issues.

RELS 429 Advanced Topics in Religious History (3) Recommended: RELS216 or RELS289. Repeatable to 9 credits if content differs. Advanced study of religious history in a particular setting, with attention to particular themes, texts, events, or communities.

RELS 430 Dead Sea Scrolls (3) Credit only granted for: JWST429Q, RELS419Q, or RELS430. Formerly: RELS419Q. A study of the Dead Sea Scrolls in their ancient and modern settings, and in terms of contemporary scholarly interpretations of their meaning. Interpretations of the historical significance of these documents, their connections to ancient Jewish sectarian movements, and their implications for our understanding of Judaism, Christianity, and the history of the Bible.

RELS 439 Advanced Topics in Religious Thought (3) Recommended: RELS216 or RELS289. Repeatable to 9 credits if content differs. Advanced study of religious thought in a particular setting, with attention to particular themes, texts, events, or communities.

RELS 499 Independent Study in Religious Studies (1-3) Prerequisite: Permission of ARHU-Meyerhoff Program & Center for Jewish Studies. Repeatable to 6 credits if content differs. An advanced independent research project for qualified students, supervised by a faculty member, on a topic not ordinarily covered in available courses.

RUSS -- Russian

RUSS 101 Intensive Elementary Russian I (6) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Credit only

granted for: RUSS101 or (RUSS111 and RUSS112). This intensive first-year course is intended to develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

RUSS 102 Intensive Elementary Russian II (6) Prerequisite: RUSS101 or RUSS102; and must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Credit only granted for: RUSS102 or (RUSS113 and RUSS114). A continuation of RUSS101 which will further develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

RUSS 201 Intermediate Russian I (5) Prerequisite: RUSS102 or RUSS114; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Continued activation and expansion of skills and knowledge acquired in an elementary Russian course with the goal of communicative competence.

RUSS 202 Intermediate Russian II (5) Prerequisite: RUSS201; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Russian. Continued activation and expansion of skills and knowledge acquired in RUSS201 with the goal of communicative competence.

RUSS 203 Intermediate Russian for Heritage Speakers I (3) Prerequisite: Heritage knowledge of Russian equal to or higher than minimum one year of Russian UMD language classes or appropriate Foreign Language Placement Testing (FLPT) score. Restriction: For heritage speakers only, i.e., Russian speakers who grew up outside of Russia with different levels of Russian, wanting to gain literacy and improve their Russian overall. Credit only granted for: RUSS201 or RUSS203. Designed for heritage speakers of Russian, with the goal of attaining competency in written Russian while improving speaking and reading skills.

RUSS 204 Russian for Heritage Speakers II (3) Prerequisite: RUSS203; or heritage knowledge of Russian equal to or higher than minimum one year of Russian UMD language classes or appropriate Foreign Language Placement Testing (FLPT) score. Restriction: For heritage speakers only, i.e., Russian speakers who grew up outside of Russia with different levels of Russian, wanting to gain literacy and improve their Russian overall. Credit only granted for: RUSS202 or RUSS204. For Russian heritage speakers (Russian speakers who grew up outside of Russia) with different levels of Russian, wanting to gain literacy and improve their Russian overall.

RUSS 211 Applied Russian Phonetics (3) Prerequisite: RUSS102. Restriction: Must not be a native/fluent speaker of Russian. Pronunciation; the sounds and intonational patterns of Russian in contrast with those of English.

RUSS 221 Masterworks of Russian Literature I (3) Introduction to the classics of Russian literature in translation, beginning with Pushkin in the early 19th century and concluding with works of Dostoevsky and Tolstoy in the latter part of the century. Taught in English.

RUSS 222 Masterworks of Russian Literature II (3) Introduction to the classics of Russian literature in translation, beginning with the end of the nineteenth century and concluding with contemporary works. Taught in English.

RUSS 223 Dostoevsky and The Russian Soul (3) Credit only granted for: RUSS223 or RUSS298P. Dostoevsky's exploration of the dark side of the psyche shaped a mythological image of the Russian soul.

An examination of his selected works in light of development of psychoanalysis and Russian and European intellectual history. Taught in English.

RUSS 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

RUSS 282 Contemporary Russian Culture (3) Russia of the post-Communist era. An exploration of the cultural implications of the disintegration of the former Soviet Union. Also included is a brief introduction to the Russian language: alphabet, elementary reading and survival skills for the first time traveler. Course format includes a combination of lectures, group discussions, videos, and optional field trips. Taught in English.

RUSS 298 Special Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 301 Advanced Russian I (3) Prerequisite: RUSS202; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a native/fluent speaker of Russian. Advanced training in written Russian communicative structures.

RUSS 302 Advanced Russian II (3) Prerequisite: RUSS301. Advanced training in written Russian communicative structures.

RUSS 303 Russian Conversation: Functional Skills (3) Prerequisite: RUSS202; or students who have taken courses with comparable content may contact the department. Intended for students who do not anticipate having the opportunity to study in Russia. Skills for daily life (both function and etiquette) and argumentation (rhetoric).

RUSS 321 Survey of Russian Literature I (3) Prerequisite: RUSS202; or students who have taken courses with comparable content may contact the department. The first half of a survey of Russian literature.

RUSS 322 Survey of Russian Literature II (3) Prerequisite: RUSS321; or students who have taken courses with comparable content may contact the department. The second half of a survey of Russian literature.

RUSS 328 19th Century Russian Literature in Translation (3) Repeatable to 6 credits if content differs. Development of Russian literary thought in the Russian novel and short prose of the 19th century. Influence of western literatures and philosophies.

RUSS 329 Soviet Literature in Translation (3) Repeatable to 6 credits if content differs. Russian literature between 1917 and the fall of the Soviet Union, both as a continuation of pre-revolutionary traditions and as a reflection of Soviet ideology.

RUSS 334 Soviet Film: Propaganda, Myth, Modernism (3) Also offered as: FILM334. Credit only granted for: RUSS334, FILM334, or RUSS298K. Formerly: RUSS298K. A Survey of Soviet film from the 1920s to 1991, focusing on important directors, genres, themes, and styles. Taught in English.

RUSS 336 Soviet Cinema and Empire (3) Also offered as: FILM336. Credit only granted for: RUSS336, FILM336, or RUSS398K. Formerly: RUSS398K. Examination of the concepts of "empire" and "nation" through their representation in Soviet cinema. Taught in English.

RUSS 361 Dostoevsky's Life and Works (3) Credit only granted for: RUSS361 or RUSS298P. Formerly: RUSS298P. A study of Dostoevsky's major works with reference to related developments in Russian and European culture, literary criticism, and intellectual history. Interdisciplinary investigation of Dostoevsky's contemporary relevance and tremendous international popularity.

RUSS 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

RUSS 381 Russian Civilization (in Russian) I (3) Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet and the theater to the beginning of the 19th century pointing out the interrelationship of all with literary movements. Taught in Russian.

RUSS 382 Russian Civilization (in Russian) II (3) Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet, and the theater, from the beginning of the 19th century to the present pointing out the interrelationships of all with literary movements. Taught in Russian.

RUSS 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-School of Languages, Literatures, and Cultures department.

RUSS 388 Language House Spring Colloquium (1) Restriction: Must be a resident of Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

RUSS 398 Selected Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 401 Advanced Russian Composition (3) Prerequisite: RUSS302; or students who have taken courses with comparable content may contact the department. Restriction: Not open to native speakers of Russian. Approaches to argumentation, organization of information, contextualized grammar, appropriateness of lexical choice, genre, and register.

RUSS 402 Practicum in Written Russian (3) Prerequisite: RUSS401; or students who have taken courses with comparable content may contact the department. Designed to improve comprehension of functional varieties of written Russian and develop ability to present in written form concise syntheses of source texts.

RUSS 403 Russian Conversation: Advanced Skills (3) Prerequisite: RUSS303; or students who have taken courses with comparable content may contact the department. Advanced spoken production of high-level, abstract language.

RUSS 405 Russian-English Translation I (3) Prerequisite: Must have completed or be concurrently enrolled in RUSS302. Introduction to the principles of translation of a particular genre, and is typically diplomatic, business, or literary.

RUSS 406 Russian-English Translation II (3) Prerequisite: RUSS405. Continuation of RUSS405.

RUSS 409 Selected Topics in Russian Language Study (3) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian language study.

RUSS 411 Linguistic Analysis of Russian I (3) Prerequisite: Must have completed or be concurrently enrolled in RUSS301. Elucidation of theoretical concepts of modern linguistics through the analysis of problematic concepts in the Russian linguistic system. Phonology and the syntax of the simple sentence.

RUSS 412 Linguistic Analysis of Russian II (3) Prerequisite: RUSS411. Continuation of RUSS411. The syntax of the complete sentence, semantics.

RUSS 433 Russian Literature of the 20th Century (3)

RUSS 439 Selected Topics in Russian Literature (3) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian literature.

RUSS 499 Independent Study in Russian (1-3) Prerequisite: Permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

SLAA -- Second Language Acquisition and Application

SLAA 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAA 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAA 410 Second Language Acquisition: Theory, Research, and Practice (3) Prerequisite: LING200, LING240, PSYC200, PSYC221, or PSYC354. Introduces vibrant and expanding branch of language science and cognitive science: theory, research and practice in SLA. Students apply what they learn to practical issues ranging from learning languages as an adult to societal problems involving second languages and dialects.

SLAA 498 Second Language Research and Practicum (1-3) Restriction: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 9 credits if content differs. Additional information: UGRAs register for 1-3 credits. A specific weekly schedule will be determined at the beginning of the semester. Throughout the semester, students will meet with the Graduate Supervisor (GS) once per week to discuss the theoretical and methodological background of the project as well as the broader area behind the research. In addition to the training in theoretical background, the first several weeks of the semester will be devoted to hands-on details of running subjects using a particular method and analyzing data. When this training is complete, UGRAs will work more independently to schedule and run research projects and process the data. Individualized research and practicum for undergraduate students to work as Undergraduate Research Assistants (UGRA) on existing projects under the supervision of a PhD Graduate Supervisor (GS) in the area of second language acquisition to learn/experience how second language as well as psycholinguistic research is conducted.

SLAV -- Slavic

SLAV 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAV 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLAV 386 Experiential Learning (3-6) Restriction: Must have a Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor; and junior standing or higher.

SLAV 469 Selected Topics in Slavic Studies (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic studies.

SLAV 475 Old Church Slavonic (3) Introduction to the language of the oldest recorded Slavic documents. Historical presentation of phonology, morphology, and syntax; reading of texts.

SLAV 479 Selected Topics in Slavic Linguistics (3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic linguistics.

SLAV 499 Directed Study (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 6 credits if content differs.

SLLC -- School of Languages, Literatures and Cultures

SLLC 108 Beg Less Commonly Taught Language I (3-6) Restriction: Not open to native speakers of the language being taught. Heritage speakers must contact the instructor at the host institution to determine proper placement. Repeatable to 12 credits if content differs. Additional information: Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course. Study of any of the less commonly taught languages at the elementary level. Speaking, listening, reading, and writing a less commonly taught language. Development of an emphasis on oral proficiency skills.

SLLC 109 Beg Less Commonly Taught Language II (3-6) Restriction: Not open to native speakers of the language being taught. Heritage speakers, or those with previous experience in the language, must contact the instructor at the host institution to determine proper placement. Repeatable to 12 credits if content differs. Additional information: Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course. Study of any of the less commonly taught languages at the elementary level, as a continuation of SLLC108 (in the same language). Speaking, listening, reading, and writing a less commonly taught language. Development of an emphasis on oral proficiency skills.

SLLC 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLLC 199 Special Topics in Language Study (1-3) Repeatable to 6 credits if content differs. Language and topic to be announced when offered.

SLLC 208 Intermediate Less Commonly Taught Language I (3-6) Prerequisite: SLLC109; or must have permission of instructor after placement assessment. Restriction: Not open to fluent/native speakers. Heritage speakers or students with prior knowledge of the language must contact the instructor at the host institution to determine proper placement before enrolling. Repeatable to 12 credits if content differs. Additional information: Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course. Intermediate-level work on speaking, reading, and writing a less commonly taught language. Continued development of oral proficiency skills.

SLLC 209 Intermediate Less Commonly Taught Language II (3-6) Prerequisite: Must have completed SLLC208 or have permission of instructor, based on placement assessment. Restriction: Not open to native speakers of the language being taught. Heritage speakers or students with prior knowledge of the language must contact the instructor at the host institution to determine proper placement before enrolling. Repeatable to 12 credits if content differs. Additional information: Course is offered remotely via a member institution of the CIC CourseShare arrangement. Instruction may be delivered synchronously or asynchronously. Students register through University of Maryland, and course appears on transcript as a UMd course. No additional fees are associated with this course. Second semester Intermediate-level work on speaking, reading, and writing a less commonly taught language. Continued development of oral proficiency skills.

SLLC 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLLC 283 Introduction to Cinema Studies (3) Also offered as: FILM283. Credit only granted for: SLLC283 or FILM283. Introduction to the critical analysis of international film. Development of a set of critical technical tools for examining film within a variety of cultural settings. Focus on an analysis of film form and the aesthetics of cinema that differentiate it from other media.

SLLC 284 Language, Power and Society (3) Introduction to language variation along social, ethnic and regional identity lines.Taught in English.

SLLC 285 European Encounters with New Worlds (3) Studies travel accounts, maps and visual images from Marco Polo, Christopher Columbus, Amerigo Vespucci and others to gain insight into resilient mechanisms of cross-cultural perception, communication, and representation that inform cross-cultural encounters today. Taught in English.

SLLC 286 Living the Good Life: Chinese Philosophy in the Modern World (3) Additional information: Taught in English. Confucius, Mencius, Zhuangzi and other Chinese thinkers who lived more than 2,000 years ago would argue that the contemporary Western emphasis on self-discovery (Find yourself) and self-acceptance has led you astray. See what they have to say and discuss what relevance it has for the modern world as we study how early Chinese thinkers wrestled with questions of existence, morality, and governance. No previous knowledge of Chinese philosophy and history will be assumed and no prerequisites are required. We will discuss ideas that are both historical and relevant to students' lives. What is "the Way"? How do we cultivate spontaneity? Is there a stable self? How can we be more alive? These are questions important for ancient kings but also for UMD students choosing a major, or wondering how ARHU can benefit them.

SLLC 299 Special Topics in World Cultures (1-6) Repeatable to 6 credits if content differs. Topic to be announced when course is offered.

SLLC 309 Language Partner Program (1) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: For intermediate- to advanced-level language majors. Repeatable to 3 credits. For intermediate- to advanced-level language study. Conversations entirely in target language with native speaker.

SLLC 335 The Arab-Israeli Conflict Through Film (3) Also offered as: FILM335. Credit only granted for: SLLC335, FILM335, HEBR298B, or ISRL249B. Formerly: HEBR298B or ISRL249B. How does the Arab-Israeli Conflict represent itself? How do the actors within this conflict (and some from outside) come to understand this conflict by representing it to themselves? The prism of film will touch on many of the various discourses (history, society, culture). The course will investigate whether the medium of film represents and formulates this Conflict in a particular way.

SLLC 342 Film Comedy (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM342. Credit only granted for: SLLC342, FILM342, or SLLC368B. Formerly: SLLC368B. Comedy as a specific cinematic genre.

SLLC 343 Hollywood Genres After 1970 (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM343. Credit only granted for: SLLC343 or FILM343. Introduction to contemporary Hollywood cinema.

SLLC 344 Film and the Fantastic (3) Prerequisite: FILM283, ENGL245, FILM245, or SLLC283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM344. Credit only granted for: SLLC344 or FILM344. Survey of fantastic cinema, encompassing American classics, Hollywood recent productions, and independent films, as well as Asian horror films, anime, and European fantasy.

SLLC 361 Cinema and Globalization (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM361. Credit only granted for: SLLC361, FILM361, SLLC368G, or CMLT498C. Formerly: SLLC368G and CMLT498C. Introduction to cinema as a global phenomenon.

SLLC 362 Vision, Visuality, and the Gaze in Cinema (3) Prerequisite: SLLC283, FILM283, ENGL245, or FILM245; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM362. Credit only granted for: SLLC362, FILM362, or SLLC368A. Students will build a way of talking critically about film. The prism of seeing, visuality, the gaze, and the like will serve as a way to investigate the way films take on meaning as well as to understand how film participates in a wide network of interconnected ideas, concepts, and modes of thought that have contributed to the audiences' ability to make sense of what a film is conveying.

SLLC 368 Special Topics in Film Studies I (3) Content varies. Exploration of topics in film studies beyond national traditions, for example through the lens of theory, genre, auteurship, aesthetic movements in cinema, and/or comparative perspectives.

SLLC 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SLLC 386 Experiential Learning (3) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and the student's internship sponsor. Restriction: Junior standing or higher.

SLLC 400 Articulatory Phonetics for Second Language Acquisition and Application (3) Restriction: Junior standing or higher. Credit only granted for: SLLC400. The mechanical capabilities of the human vocal apparatus for producing speech sounds, and their terminology and transcription in the International Phonetic Alphabet. Emphasis is on the practical needs of the teacher and student of foreign language, rather than the theoretical linguist or the hearing-and-speech pathologist. The phonetics of major languages are also introduced, with attention to the pedagogy of their phonetics.

SLLC 410 Documentary and Narrative (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM410. Credit only granted for: SLLC410 or FILM410. An examination of the relationship between film and reality, focusing on documentary film.

SLLC 411 Experimental Film (3) Also offered as: FILM411. Credit only granted for: SLLC411 or FILM411. Introductory survey of European and U.S. American experimental cinema.

SLLC 461 Political Cinema (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM461. Credit only granted for: SLLC461, FILM461, CMLT498P, or SLLC468P. Formerly: CMLT498P or SLLC468P. Histories of cinema and politics in the 20th century.

SLLC 463 Screening Time: History and Memory in Cinema (3) Prerequisite: ENGL245, FILM245, SLLC283, or FILM283; or permission of ARHU-School of Languages, Literatures, and Cultures department. Also offered as: FILM463. Credit only granted for: SLLC463 or FILM463. An examination of the ways and techniques with which cinema produces a sense of time in the viewer.

SLLC 468 Special Topics in Film Studies II (3) Repeatable to 12 credits if content differs. Exploration of topics in film studies beyond national traditions, for example through the lens of theory, genre, auteurship, aesthetic movements in cinema, and/or comparative perspectives. Courses at the 400-level have higher expectations of independent work, including reading and written assignments.

SLLC 471 The Cultural Environment of Global Business (3) Restriction: Sophomore standing or higher. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439B. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 472 International Business Cultures in Engineering and Technology (3) Restriction: Sophomore standing or higher. Also offered as: ENES472. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439T. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business and engineering, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding,

attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 473 European Business Cultures (3) Restriction: Sophomore standing or higher. Credit only granted for: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472, or SLLC473. Formerly: ARHU439E. The goal of this course is to provide students with an understanding of cultural aspects pertaining to European business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the European business world. Students will gain an understanding of how the European business cultures diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

SLLC 499 Special Topics in World Cultures (3) Repeatable to 12 credits if content differs. Interdisciplinary, transnational or cross-language course; specific topic to be announced.

SOCY -- Sociology

SOCY 100 Introduction to Sociology (3) The fundamental concepts and principles of sociology. Includes consideration of culture, patterns of social interaction, norms, values, social institutions, stratification, and social change.

SOCY 105 Introduction to Contemporary Social Problems (3) An examination of contemporary social problems through sociological perspectives; ways in which social problems are part of the organization of society; a detailed study of selected social problems including social conflict and social inequality.

SOCY 125 Why does Educational Inequality in the U.S. Persist? Explaining Differences in Educational Attainment (3) Explores questions related to educational inequality in the US. Examines what variables other than individual ability and effort influence educational attainment - how well and how far we go in school.

SOCY 200 Human Societies (4) A comparative, historical, interdisciplinary study of human socieities that focuses on the main components of human societies, how they are organized, how they change, and how they come to shape our collective social existence.

SOCY 201 Introductory Statistics for Sociology (4) Prerequisite: SOCY100; and (MATH107 or MATH111). Or students who have taken courses with comparable content may contact the department. Restriction: Must not have completed STAT400, BMGT231, or ENEE324. Credit only granted for: BIOM301, BMGT230, CCJS200, ECON230, ECON321, EDMS451, GEOG306, GEOL351, GVPT422, JOUR405, PSYC200 or SOCY201. (These courses do not necessarily meet the same major requirements-check with your advisor to see which of these courses will count for your major). Elementary descriptive and inferential statistics. Construction and percentaging of bivariate contingency tables; frequency distributions and graphic presentations; measures of central tendency and dispersion; parametric and nonparametric measures of association and correlation; regression; probability; hypothesis testing; the normal, binomial and chi-square distributions; point and interval estimates.

SOCY 202 Introduction to Research Methods in Sociology (4) Prerequisite: SOCY201. The underlying logic, major strategies, specific techniques and skills of sociological research. Research

design, measurement, data collection, sampling, field research experiments, surveys, index and scale construction, data analysis, interpretation and report writing.

SOCY 203 Sociological Theory (3) Prerequisite: SOCY100. Development of the science of sociology; historical backgrounds; recent theories of society. Required of all sociology majors.

SOCY 224 Why are We Still Talking About Race? (3) Exploration of the major debates and assumptions that construct individual perceptions of what race is and how race matters. Sociological and sub-cultural theories will give students a historical and present day frame with which to view race and ethnic relations in the twenty first century.

SOCY 227 Introduction to the Study of Deviance (3) Credit only granted for: SOCY227 or SOCY327. Formerly: SOCY327. An introduction to the sociological study of deviant behavior, covering such topics as mental illness, sexual deviance, and the use of drugs.

SOCY 230 Sociological Social Psychology (3) Theoretical perspectives and their applications. Socialization through the life course, the self-concept, attitudes, emotion, attribution, interpersonal relations, group processes, deviance, and social change.

SOCY 241 Inequality in American Society (3) The dynamics of inequality: its social production, politics, future, and ideological bases. Utopian communities, efforts to eliminate inequality.

SOCY 325 The Sociology of Gender (3) Prerequisite: 3 credits in SOCY courses. Also offered as: WMST325. Credit only granted for: SOCY325 or WMST325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

SOCY 370 Transition from Undergrad to Professional (1) Prepares Sociology majors to make the transition from undergraduate to entering graduate school and/or the professional work world. Topics include career options in Sociology, skills for conducting a job search, resume writing and interview preparation, and the graduate application process.

SOCY 380 Honors Independent Reading in Sociology (3) Restriction: Permission of BSOS-Sociology department. Formerly: SOCY378. This course permits sociology honor students to undertake a program or reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of sociology honor students.

SOCY 381 Honors Independent Research in Sociology (3) Prerequisite: SOCY380. Formerly: SOCY388. This course permits sociology students to define a particular problem in sociology or a subfield therein and to develop a research plan for use as a thesis topic. The work will be done under the supervision of a member of the sociology faculty.

SOCY 383 Honors Thesis Research (3) Prerequisite: SOCY381. Formerly: SOCY389. Student research under the direction of a member of the sociology faculty, culminating in the presentation and defense of a thesis reporting the research.

SOCY 386 Experiential Learning (3-6) Restriction: Permission of BSOS-Sociology department; and junior standing or higher.

SOCY 398 Special Topics in Sociology (1-3) Prerequisite: 3 credits in SOCY courses. Repeatable to 6 credits if content differs. Topics of special interest to both sociology majors and non-majors.

SOCY 399 Independent Study in Sociology (1-6) Prerequisite: 12 credits in SOCY courses. Restriction: Permission of BSOS-Sociology department. Repeatable to 6 credits if content differs. Integrated reading or research under the direction and supervision of a faculty member. A maximum of 6 credits may be earned by a student for the same field experience in SOCY386 and SOCY399 combined.

SOCY 401 Intermediate Statistics for Sociologists (4) Prerequisite: SOCY201; or students who have taken courses with comparable content may contact the department; or permission of BSOS-Sociology department. Restriction: Must not have completed STAT400, BMGT231, or ENEE324. Issues in the use of significance tests in sociology, one and two-way analysis of variance, elements of multiple regression and correlation, techniques for the analysis of nominal and ordinal data.

SOCY 405 Scarcity and Modern Society (3) Prerequisite: 6 credits in SOCY courses. Credit only granted for: SOCY305 or SOCY405. Formerly: SOCY305. Resource depletion and the deterioration of the environment. Relationship to lifestyles, individual consumer choices, cultural values, and institutional failures. Projection of the future course of American society on the basis of the analysis of scarcity, theories of social change, current trends, social movements, government actions, and the futurist literature.

SOCY 406 Globalization (3) Prerequisite: 6 credits in SOCY courses. Credit only granted for: SOCY406 or SOCY498G. Formerly: SOCY498G. An analysis of the forces driving globalization and its implications for THE SOCIAL WORLD; politics; culture (including American popular culture); technology; the media; the Internet; population flows; environmental changes and problems; other negative (or deviant) flows such as disease, crime and terrorism; inequality, as well as ways of dealing with or resisting globalization (alter-globalization).

SOCY 407 Explaining Social Change: Historical and Comparative Methods (3) Prerequisite: 6 credits in SOCY courses. Credit only granted for: SOCY407 or SOCY498Y. Formerly: SOCY498Y. Examines social change from the perspective of comparative and historical sociology to get at the question, 'where are we now?' Students develop a critical appreciation of how scholars construct persuasive explanations for large-scale change focusing on four central questions: the origins of markets and industrial capitalism; the emergence of democracy as opposed to dictatorship; the causes and consequences of social revolution; and the logic of armed conflict. Explanations offered for the changes in question as well as the methods employed are explored. Counterfactual hypotheticals for each central question--that is, what might have been, rather than what historically emerged--are considered.

SOCY 410 Social Demography (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Types of demographic analysis; demographic data; population characteristics; migration; mortality; fertility; population theories; world population growth; population policy.

SOCY 411 Demographic Techniques (3) Prerequisite: (SOCY201; or students who have taken courses with comparable content may contact the department); and SOCY410. Or permission of BSOS-Sociology department. Basic techniques for analyzing population structure and demographic processes, including fertility, mortality and migration.

SOCY 412 Family Demography (3) Prerequisite: 6 credits in SOCY courses. Formerly: SOCY312. Family and population dynamics. Fertility issues, such as teenage pregnancy, the timing of parenthood,

and family size; as they relate to family behavior, such as marital patterns, child care use, and work and the family. Policy issues that relate to demographic changes in the family.

SOCY 413 Sociology of Aging (3) Prerequisite: 2 courses in SOCY. Credit only granted for: SOCY498D or SOCY413. Formerly: SOCY498D. The aging of the population is one of the major demographic changes affecting social institutions during the next century. Research demography, sociology, economics, epidemiology, psychology and public health are integrated to develop a broader understanding of the causes and consequences of population aging. A central focus is the diversity of experiences by age, gender, socioeconomic status and health.

SOCY 415 Environmental Sociology (3) Prerequisite: 6 credits in SOCY courses. Credit only granted for: SOCY498E or SOCY415. Formerly: SOCY498E. Overview of the field and theoretical themes within the area of environmental sociology and technology. Current issues are explored including: environmental attitudes; environmental movements; environmental justice; globalization; global climate change; and garbage and food.

SOCY 418 Research in Family & Demography (3) Prerequisite: SOCY202 and SOCY203; and one course in Family and Demography. Repeatable to 6 credits if content differs. This is a special topics research course for Family and Demography.

SOCY 424 Sociology of Race Relations (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Also offered as: AAST424. Credit only granted for: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

SOCY 428 Research in Inequality (3) Prerequisite: SOCY203 and SOCY202; and must have completed a course in Stratification and Inequality. Repeatable to 6 credits if content differs. This is the special topics research course for Stratification and Inequality.

SOCY 430 Social Structure and Identity (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Theoretical issues in social psychology, focusing on social construction of identity. Identity formation and transformation in social process. Structural and cultural dimensions of social identity.

SOCY 431 Principles of Organizations (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Structural and processual characteristics of organizations that make them effective for different purposes and in different environments. Effects of different institutional environments, small group processes, organizational networks, and leadership. Types of organizations studied include formal bureaucracies, professional organizations, and voluntary associations.

SOCY 432 Social Movements (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Movements that seek change in the social and political structure of society. Origins, tactics, organization, recruitment, and success. Case studies come from such movements as labor, civil rights, student, feminist, environmental, neighborhood, and gay rights.

SOCY 438 Research in Organizations and Institutions (3) This is the special topics research course for Organizations and Institutions.

SOCY 440 Sociology of the Self-Concept (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. The nature of the self-concept and the social forces that mold it. Major sociological, psychological, and psycho-analytic theories of the self-concept. Self-concept motives, mechanisms of self-defense, and the nature of a healthy self-concept. Empirical research dealing with the bearing of social interaction, social structure, social context and social institutions on the self-concept.

SOCY 441 Social Stratification and Inequality (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Restriction: Junior standing or higher. The sociological study of social class, status, and power. Topics include theories of stratification, correlates of social position, functions and dysfunctions of social inequality, status inconsistency, and social mobility.

SOCY 443 The Family and Society (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Study of the family as a social institution; its biological and cultural foundations, historical development, changing structures and functions, the interaction of marriage and parenthood, disorganizing and reorganizing factors in present-day trends.

SOCY 444 Sociology of Children (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Socio-historical analysis of the changing nature and meaning of childhood. Analysis of social psychological, demographic, and socioeconomic aspects of contemporary children's lives, with a focus on peer groups, gender relations, family change, macroeconomic conditions, poverty, health, and educational well-being of children.

SOCY 448 Research in Social Psychology (3) This is the special topics research course in Social Psychology

SOCY 450 Measurement of Time, Work, and Leisure (3) Prerequisite: 6 credits in SOCY courses. How Americans use time, with specific reference to work, housework, personal and free time activities. Time-use differences across methods, social groups and cultures. Subjective time. Implications for time management, societal quality of life, social policy, and theory.

SOCY 460 Sociology of Work (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Analysis of the American work world with special attention to the impact of social change and occupational conflicts on the individual worker. Professionalization, career patterns, problems of minority groups and the future of work.

SOCY 463 Sociology of Combat (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Sociological theories and concepts related to combat. Influence of historical events on relations between nations and between the military and society. Effects of U.S. social structure on actions in combat; effects of involvement in combat on social structure and on members of society. Cohesion and leadership in military units.

SOCY 464 Military Sociology (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Social change and the growth of military institutions. Complex formal military organizations. Military service as an occupation or profession. The sociology of military life. Relations between military institutions, civilian communities and society.

SOCY 465 The Sociology of War (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. The origin and development of armed forces as institutions, the social causes, operations and results of war as social conflict; the relations of peace and war and revolution in contemporary civilizations.

SOCY 467 Sociology of Education (3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Sociological analysis of educational institutions and their relation to society: goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the school as a formal organization, and the roles and subcultures of teachers and students.

SOCY 498 Selected Topics in Sociology (1-3) Prerequisite: 6 credits in SOCY courses; or permission of BSOS-Sociology department. Repeatable to 6 credits. Topics of special interest to advanced undergraduates in sociology. Such courses will be offered in response to student request and faculty interest.

SPAN -- Spanish

SPAN 101 Elementary Spanish I (4) Restriction: Must not be a native/fluent speaker of Spanish. Introduction to the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 102 Elementary Spanish II (4) Prerequisite: SPAN101; or students who have taken courses with comparable content may contact the department. Restriction: Must not be a native/fluent speaker of Spanish. Further study of the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 103 Intensive Elementary Spanish (4) Prerequisite: Must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Spanish. Credit only granted for: SPAN102 or SPAN103. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.

SPAN 125 Spanish Civilization: From Kingdoms to Nationalities (3) Introduction to the cultural heritage of the Spanish people, their traditions, customs, arts and literature, with special emphasis on the interrelationship of social and literary history. Taught in English.

SPAN 169 Special Topics in Study Abroad I (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 201 Intermediate Spanish (4) Continued development of the functions and structures of the Spanish language with emphasis on the four skills of listening, speaking, reading, and writing.

SPAN 203 Intensive Intermediate Spanish (4) Prerequisite: SPAN103; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Must not be a native/fluent speaker of Spanish. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.

SPAN 204 Spanish Grammar Review (3) Prerequisite: SPAN203; or must have appropriate Foreign Language Placement Test (FLPT) score. Restriction: Not open to fluent/native speakers of Spanish. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the United States (3) Restriction: Must have native or near native knowledge of oral Spanish; and must have no formal education in Spanish. Review of oral and written Spanish for students who have native or near-native ability in Spanish, but have never studied it in a formal setting.

SPAN 207 Reading and Writing in Spanish (3) Prerequisite: Minimum grade of B+ in SPAN203; or must have completed or be concurrently enrolled in SPAN204; or must have appropriate Foreign Language Placement Test (FLPT) score. Selected readings with emphasis on reading comprehension and the development of reading strategies. Work in composition writing and a review of selected grammatical topics. Complements material of SPAN204.

SPAN 222 Cultural Difference in Contemporary Latin America (3) Introduction to representations and expressions in Latin America: cultural stereotypes, representations of difference, forms of discrimination, sublimation of difference into national identity, and the staging of the other. Taught in English.

SPAN 224 Violence and Resistance in the Americas (3) Indigenous vision of violence and resistance in the Americas. Texts and maps from the European explorers and conquerors are also studied. Readings include primary texts from the 16th as well as from the 20th century. Taught in English.

SPAN 225 Cultures of the Contact Zones - Seville, Al-Andalus and the Atlantic World (3) Credit only granted for: HONR248E or SPAN225. Content is broad enough to deal with issues of multiculturalism in Spain but also specific enough to center on the city of Seville and the Andalusion region.

SPAN 228 Selected Topics in Latin American Literature and Society (3-6) Repeatable to 6 credits if content differs. Also offered as: PORT228. Credit only granted for: SPAN228 or PORT228. Topics on literature and society in contemporary Latin America. Topics vary. Taught in English.

SPAN 229 Selected Topics in Latin American Culture (1-3) Repeatable to 9 credits if content differs. Varied topics in Latin America culture.

SPAN 234 Issues in Latin American Studies I (3) Also offered as: PORT234, LASC234. Credit only granted for: SPAN234, PORT234, or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions. Taught in English.

SPAN 235 Issues in Latin American Studies II (3) Also offered as: PORT235, LASC235. Credit only granted for: SPAN235, PORT235, or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of SPAN/PORT/LASC234, but completion of 234 is not a prerequisite. Taught in English.

SPAN 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 301 Advanced Grammar and Composition I (3) Prerequisite: Must have completed or be concurrently enrolled in SPAN207. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.

SPAN 302 Advanced Grammar and Composition II (3) Prerequisite: SPAN301. Practice in and writing of different types of compositions and essays, including narrations, descriptions, and persuasive writing. Review of problematic syntactical structures.

SPAN 303 Approaches to Cultural Materials in the Hispanic World (3) Prerequisite: SPAN207; or permission of instructor. Development of proficiency in critical thought through the reading, viewing, and analytical discussion of major genres and styles of cultural materials selected from Spanish-speaking world. Taught in Spanish.

SPAN 306 Spanish II for Native Speakers (3) Prerequisite: SPAN206. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical and stylistic devices will be highlighted. Designed for Spanish speakers educated in English.

SPAN 307 Oral Communication Skills for Native Speakers of Spanish (3) Development of techniques for formal public speaking in Spanish. Writing and delivering oral presentations for varied audiences and purposes. Includes strategies for organization, the use of rhetorical patterns, and the development of effective discourse. Designed for bilingual students who are native speakers of Spanish (Heritage Language learners), who have been educated in the U.S. and whose Spanish ability is mainly oral.

SPAN 310 Spanish Phonetics (3) Prerequisite: SPAN301 and SPAN303; and permission of ARHU-School of Languages, Literatures, and Cultures department. Descriptive study of the Spanish sound system. Practice in phonetic perception, transcription, and articulation. Particular attention to sentence phonetics; juncture, rhythm, stress, pitch.

SPAN 311 Advanced Conversation I (3) Prerequisite: SPAN204 or SPAN211; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Must not be a native/fluent speaker of Spanish. Further development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 312 Advanced Conversation II (3) Prerequisite: SPAN311. Restriction: Must not be a native/fluent speaker of Spanish. Continued mastery of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation, and increase vocabulary. Emphasis on colloquial and technical language as well as development of linguistic accuracy. Individual and/or group oral presentation.

SPAN 315 Commercial Spanish I (3) Prerequisite: SPAN301 and SPAN303; or permission of ARHU-School of Languages, Literatures, and Cultures department. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of Spanish commercial topics. May include exposure to Spanish commercial topics. May include exposure to Spanish business environments.

SPAN 316 Practicum in Translation I (3) Prerequisite: SPAN301 and SPAN303; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 317 Translation II (3) Prerequisite: SPAN316. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 318 Translation of Technical Texts (3) Prerequisite: SPAN316. Repeatable to 6 credits if content differs. Translation of technical and specialized texts in various fields (e.g. medicine, law, international affairs, social work, journalism, technology) into Spanish and/or English.

SPAN 331 Spanish Culture, Civilization and Literature I: Medieval Times (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed SPAN325 or SPAN321. Credit only granted for: SPAN321, SPAN325, or SPAN331. The exploration of cultures of the Iberian Peninsula from its origins until the 15th century as well as the study of historical and political events that gave rise to the Spanish state. Taught in Spanish.

SPAN 332 Spanish Culture, Civilization and Literature II: Renaissance and Baroque (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. An overview of cultural and literary production of Spain from the late 15th through late 17th centuries, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. Taught in Spanish.

SPAN 333 Spanish Culture, Civilization and Literature III: Modern Times (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed SPAN322 or SPAN326. Credit only granted for: SPAN322, SPAN326, or SPAN333. An overview of cultural and literary production of Spain from the late 17th century through the present day, exploring the production of literary texts in their socio-historical, political, religious and cultural contexts and development. Taught in Spanish.

SPAN 335 Cultural History of Seville (4) Prerequisite: SPAN301. Recommended: SPAN303. Cultural History of Seville: An exploration of the Iberian, Mediterranean, and transatlantic contexts shaping the history, identity, and cultural and artistic expressions of Seville. Includes texts from the Middle Ages to the twenty first century. Focus on the historical, literary and cultural evolution of Seville from the Roman Empire and the Moorish occupation to the discovery and conquest of America until present times. Taught in Spanish.

SPAN 356 Literary Translation I (3) Prerequisite: SPAN317; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation of literary texts into Spanish and/or English: narrative.

SPAN 359 Spanish for the Professions (3-9) Prerequisite: SPAN316; or permission of department. Repeatable to 9 credits if content differs. Exploration of cultural and linguistic skills for different professional contexts including vocabulary, listening, speaking, reading and strategies. No experience in the professional area necessary. Taught in Spanish.

SPAN 361 Latin American Literatures and Cultures I: From Pre-Columbian to Colonial Times (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed SPAN323 or SPAN346. Credit only granted for: SPAN361, SPAN323, or SPAN346. Overview of cultural history of Latin America from pre-Columbian civilizations to the Colonial period, exploring the foundations of the Spanish American cultural and literary tradition to approximately 1770. Taught in Spanish.

SPAN 362 Latin American Literatures and Cultures II: From Independence to Nation Formation (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. An overview of cultural and literary production of Latin America from the 18th Century to approximately 1900, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. Taught in Spanish.

SPAN 363 Latin American Literatures and Cultures III: From Modernism to Neo-Liberalism (3) Prerequisite: SPAN301 and SPAN303; or permission of instructor. Restriction: Must not have completed

SPAN324 or SPAN347. Credit only granted for: SPAN324, SPAN347, or SPAN363. An overview of cultural and literary production of Latin America from the late 19th through the early 21st centuries, exploring the production of literary texts in their socio-historical, political, and cultural contexts and development. Taught in Spanish.

SPAN 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 371 Spanish for the Health Professions (3) Prerequisite: SPAN301 and SPAN316; or permission of instructor. Credit only granted for: SPAN371 or SPAN389A. Formerly: SPAN389A. Exploration of cultural and linguistic skills for the health professions including vocabulary, listening, speaking, reading and strategies. No experience in the professional area necessary.

SPAN 386 Experiential Learning (3-6) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Junior standing or higher.

SPAN 388 Language House Spring Colloquium (1) Restriction: Must reside in the Language House Immersion program. Repeatable to 8 credits if content differs. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

SPAN 399 Independent Study in Spanish (1-3) Prerequisite: Permission of ARHU-School of Languages, Literatures, and Cultures department. Repeatable to 3 credits. Specific readings in literature or a translation project under the supervision of a faculty member of the department.

SPAN 401 Advanced Composition I (3) Prerequisite: SPAN302; or permission of ARHU-School of Languages, Literatures, and Cultures department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 402 Advanced Composition II (3) Prerequisite: SPAN401; or permission of ARHU-School of Languages, Literatures, and Cultures department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 406 Don Juan Manuel's Fictional and Historical Prose (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Dedicated to the literary production of an important author: Don Juan Manuel. By examining the interaction among writing, reading and the oral acquisition of knowledge in his works, special attention will be given to how the border between fact and fiction is constructed in the Middle Ages.

SPAN 408 Great Themes of the Hispanic Literatures (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Major themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

SPAN 413 Libro de Buen Amor (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Literary traditions in the Libro de buen amor.

SPAN 415 Commercial Spanish II (3) Prerequisite: SPAN315; or permission of ARHU-School of Languages, Literatures, and Cultures department. Restriction: Sophomore standing or higher. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish.

Readings and discussions of international topics. Cross-cultural considerations relative to international business operations, including exporting and banking.

SPAN 417 Practicum in Translation VI (3) Prerequisite: SPAN416; or permission of ARHU-School of Languages, Literatures, and Cultures department. Translation of complete literary texts from Spanish into English. Evaluation of different versions of the original. Problems of interpretation, literary structure and analysis.

SPAN 418 Hispanic Literature in Translation (3) Repeatable to 6 credits if content differs.

SPAN 422 Cross-Cultural Communication (3) Prerequisite: SPAN301. Restriction: Junior standing or higher. Additional information: Taught in Spanish. Focuses on the relationship of language and culture of those operating in world markets. Particular attention will be given to cross-cultural communication, linguistic systems, and culture specific perceptions of the Hispanic world.

SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts (3) Prerequisite: SPAN301 and SPAN303; or permission of ARHU-School of Languages, Literatures, and Cultures department. This course begins with an introduction to general concepts in linguistics, from language function and the brain to communication, culture, and thought, and their relation to other disciplines in the social sciences. The main purpose of this course is to provide an overview of Hispanic linguistics through multiple perspectives, while exploring the areas of Spanish morphology, syntax, and semantics. This course will also focus on the structural tendencies of Spanish through a variety of practical activities.

SPAN 426 Introduction to Hispanic Linguistics II: Language in Use (3) Prerequisite: SPAN425. Also offered as: SPAN626. Designed for students without previous experience in Linguistics. Focus on language variation and use, linguistic change, and bilingualism.

SPAN 427 Visions and Fictions from Spain (3) Prerequisite: SPAN331, SPAN332, or SPAN333; or students who have taken courses with comparable content may contact the department; or permission of ARHU-Spanish & Portuguese Languages & Literatures department. Also offered as: FILM427. Credit only granted for: FILM427 or SPAN427. Overview of Spanish Cinema from the end of the 19th century through present day Spain. Exploration of the production of literary and cinematic texts in their sociohistorical, political, religious and cultural contexts. Taught in Spanish.

SPAN 430 Cervantes: Don Quijote (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363.

SPAN 432 Colonial Latin American Literature (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Examines the key themes, writers, literary movements, and cultural debates of the colonial period.

SPAN 433 Women and Culture in Colonial Latin America (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Considers questions of women and historical production, women writers in colonial times, and contemporary literary interpretations of colonial realities. Debates the continued legacy of female archetypes from the colonial period to the present, and epistemological questions regarding the production of knowledge.

SPAN 438 Special Topics in Colonial Latin America (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. The conquest and colonization of the New World produced a textual corpus of invaluable importance for the foundation

of Spanish American literary tradition. Special topics (themes, authors, debates, etc.) relevant to the Colonial period will be addressed.

SPAN 448 Special Topics in Latin American Civilization (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 6 credits if content differs. Intensive independent study of a selected topic related to Latin American civilization.

SPAN 449 Special Topics in Spanish Civilization (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 6 credits if content differs. An intensive study of a selected topic related to Spanish civilization.

SPAN 450 The Hispanic Caribbean (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Credit only granted for: SPAN408C or SPAN450. Formerly: SPAN408C. Explores the Hispanic Caribbean as "island spaces" of multiple migrations and cultural identities, as sites of colonial experiences and post-colonial debates.

SPAN 458 Senior Capstone Course in Latin American Studies (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Restriction: Senior standing. Also offered as: LASC458. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

SPAN 459 Latin American Women Writers (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. Emphasis will be placed on contemporary Latin American women writers.

SPAN 462 Twentieth Century Drama (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Significant plays of the twentieth century.

SPAN 463 Latin American Drama (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Emphasis will be placed on Latin American plays of the twentieth century.

SPAN 464 Contemporary Spanish Poetry (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Spanish poetry from the generation of 1927 to the present.

SPAN 466 The Contemporary Spanish Novel (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. The novel and the short story from 1940 to the present.

SPAN 468 Modernism and Post-Modernism in Spain and Spanish-America (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. A study of the most important works and authors of both movements in Spain and Spanish-America.

SPAN 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

SPAN 471 United States Latina Fiction (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. An introduction to United States latina fiction through the study of short stories, novels, poetry, etc. It explores strategies of representation by women of color.

SPAN 473 U.S. Latino Performance (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. An introduction to United States Latino Performance texts by Chicano, Nuyorican, Cuban-American, Dominican, Central-American and others.

SPAN 474 Central American Literatures, Cultures, and Histories (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. An overview of Central American history and cultural production, focusing primarily but not exclusively on literary texts.

SPAN 478 Special Topics in United States Latino Cultures (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Repeatable to 9 credits if content differs. Explores special topics in US Latino Cultures, ranging from Chicano, Nuyorican, Cuban-American, Dominican, Central-American and other border cultural identities.

SPAN 479 Honors Thesis (3-6) Restriction: Must be in Spanish and Portuguese Honors. Repeatable to 6 credits if content differs. Researching and writing an honors thesis under the direction of a professor.

SPAN 488 Spanish-American Fiction (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 489 Spanish-American Fiction (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 495 Honors Reading (3) Prerequisite: Must be in Spanish and Portuguese Honors; or permission of ARHU-School of Languages, Literatures, and Cultures department. Supervised reading.

SPAN 498 Spanish-American Poetry (3) Prerequisite: SPAN333, SPAN361, SPAN331, SPAN332, SPAN362, or SPAN363. Main trends, authors and works from the conquest to Ruben Dario.

SPHL -- Public Health

SPHL 298 SPH Ambassador Program (1) Restriction: Must be in a major in SPHL-School of Public Health; and minimum cumulative GPA of 2.7; and must have earned less then 90 credits. Repeatable to 6 credits. The purpose of this course is to train students in the methods related to advising, teaching and leading undergraduate current and prospective students. At the end of the course ambassdors will be a resource to these new students in SPH through their knowledge of academic planning, college/university policy, and understanding of what SPH has to offer. Ambassados will have experience working one on one with students who have academic advising questions and concerns. They will develop better public speaking skills and know how to impart new information in an effective way to undergraduate students.

SPHL 386 Experiential Learning (3) Prerequisite: Permission of SPHL-School of Public Health.

SPHL 400 Introduction to Global Health (3) Credit only granted for: SPHL400 or SPHL498A. Formerly: SPHL498A. Exploration of theoretical frameworks and practical perspectives on issues shaping the global health panorama. Determinants examined through: biological and epidemiological; social, cultural and economic; environmental and geographic; multi-section, legal and institutional perspectives

with synopsis of how these issues are addressed by international and community organizations in developing countries.

SPHL 488 Children's Health and Development Clinic (1-4) Prerequisite: Permission of SPHL-School of Public Health. An opportunity to acquire training and experience in a therapeutically oriented physical education-recreation program for children referred by various education, special education, medical or psychiatric groups.

SPHL 498 Special Topics in Public Health (3) Restriction: Junior standing or higher. Repeatable to 9 credits if content differs. Credit only granted for: SPHL498 or SPHL698 of same suffix. Topical and interdisciplinary courses of interest to upper level undergraduate students in the field of Public Health not currently covered by the program.

STAT -- Statistics and Probability

STAT 100 Elementary Statistics and Probability (3) Prerequisite: MATH110, MATH112, MATH113, or MATH115; or permission of CMNS-Mathematics department; or must have math eligibility of STAT100 or higher and math eligibility is based on the Math Placement Exam or the successful completion of Math 003 with appropriate eligibility. Restriction: Must not have completed MATH111; or must not have completed any MATH or STAT course with a prerequisite of MATH141. Credit only granted for: STAT100, MATH107 or MATH111. Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.

STAT 386 Experiential Learning (3-6) Prerequisite: Must have learning proposal approved by the CMNS-Mathematics Department.

STAT 400 Applied Probability and Statistics I (3) Prerequisite: Minimum grade of C- in MATH131; or MATH141; or students who have taken courses with comparable content may contact the department. Credit only granted for: BMGT231, ENEE324, or STAT400. Additional information: Not acceptable toward graduate degrees in MATH/STAT/AMSC. Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.

STAT 401 Applied Probability and Statistics II (3) Prerequisite: 1 course with a minimum grade of C- from (STAT400, STAT410). Additional information: Not acceptable toward graduate degrees in MATH/STAT/AMSC. Point estimation - unbiased and consistent estimators. Interval estimation. Minimum variance and maximum likelihood estimators. Testing of hypotheses. Regression, correlation and analysis of variance. Sampling distributions. Elements of non-parametric methods.

STAT 410 Introduction to Probability Theory (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241). Also offered as: SURV410. Credit only granted for: STAT410 or SURV410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.

STAT 420 Introduction to Statistics (3) Prerequisite: 1 course with a minimum grade of C- from (SURV410, STAT410). Also offered as: SURV420. Credit only granted for: STAT420 or SURV420.

Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypothesis testing, most powerful tests, likelihood ratio tests. Chi-square tests, analysis of variance, regression, correlation. Nonparametric methods.

STAT 430 Introduction to Statistical Computing with SAS (3) Prerequisite: 1 course with a minimum grade of C- from (STAT400, STAT410). Descriptive and inferential statistics. SAS software: numerical and graphical data summaries; merging, sorting and splitting data sets. Least squares, regression, graphics and informal diagnostics, interpreting results. Categorical data, lifetime data, time series. Applications to engineering, life science, business and social science.

STAT 440 Sampling Theory (3) Prerequisite: 1 course with a minimum grade of C- from (STAT401, STAT420). Credit only granted for: STAT440 or SURV440. Simple random sampling. Sampling for proportions. Estimation of sample size. Sampling with varying probabilities. Sampling: stratified, systematic, cluster, double, sequential, incomplete.

STAT 464 Introduction to Biostatistics (3) Prerequisite: Must have completed one semester of calculus. Restriction: Junior standing or higher. Credit only granted for: BIOE372 or STAT464. Additional information: Not acceptable toward degrees in MATH/STAT. Probabilistic models. Sampling. Some applications of probability in genetics. Experimental designs. Estimation of effects of treatments. Comparative experiments. Fisher-Irwin test. Wilcoxon tests for paired comparisons.

STAT 470 Actuarial Mathematics (3) Prerequisite: 1 course with a minimum grade of C- from (MATH240, MATH461, MATH341); and 1 course with a minimum grade of C- from (MATH340, MATH241). Recommended: STAT400. Major mathematical ideas involved in calculation of life insurance premiums, including compound interest and present valuation of future income streams; probability distribution and expected values derived from life tables; the interpolation of probability distributions from values estimated at one-year multiples; the 'Law of Large Numbers' describing the regular probabilistic behavior of large populations of independent individuals; and the detailed calculation of expected present values arising in insurance problems.

STAT 498 Selected Topics in Statistics (1-6) Restriction: Permission of CMNS-Mathematics department. Repeatable to 16 credits. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the MATH/STAT major committee. Students register for reading in statistics under this number.

SURV -- Survey Methodology

SURV 400 Fundamentals of Survey and Data Science (3) Prerequisite: STAT100; or permission of BSOS-Joint Program in Survey Methodology department. Restriction: Course open to SURV certificate students, SURV Advanced Special Students, and SURV undergraduate minors. Graduate students from other departments may enroll with permission from the department. Credit only granted for: SURV699M or SURV400. Formerly: SURV699M. The course introduces the student to a set of principles of survey and data science that are the basis of standard practices in these fields. The course exposes the student to key terminology and concepts of collecting and analyzing data from surveys and other data sources to gain insights and to test hypotheses about the nature of human and social behavior and interaction. It will also present a framework that will allow the student to evaluate the influence of different error sources on the quality of data.

SURV 410 Introduction to Probability Theory (3) Prerequisite: MATH240 and MATH241; or permission of BSOS-Joint Program in Survey Methodology department. Also offered as: STAT410.

Credit only granted for: SURV410 or STAT410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments, characteristic functions, and limit theorems.

SURV 420 Introduction to Statistics (3) Prerequisite: SURV410 or STAT410. Also offered as: STAT420. Credit only granted for: STAT420 or SURV420. Mathematical statistics, presenting point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood, confidence intervals for parameters of normal distributions, chi-square tests, analysis of variance, regression, correlation, and nonparametric methods.

SURV 430 Fundamentals of Questionnaire Design (3) Restriction: Permission of BSOS-Joint Program in Survey Methodology department. Credit only granted for: SURV430 or SURV630. Introduction to the scientific literature on the design, testing and evaluation of survey questionnaires, together with hands-on application of the methods discussed in class.

SURV 440 Sampling Theory (3) Prerequisite: STAT401 or STAT420. Credit only granted for: STAT440 or SURV440. Simple random sampling, sampling for proportions, estimation of sample size, sampling with varying probabilities of selection, stratification, systematic selection, cluster sampling, double sampling, and sequential sampling.

TDPS -- Theatre, Dance and Performance Studies

TDPS 201 Introduction to Technical Production (3) Restriction: Must be in a major within ARHU-Dance department; or must be in a major within ARHU-Theatre department. Credit only granted for: DANC210 and THET114 or TDPS201. Formerly: DANC210 and THET114. Students are provided with an overview of topics related to the technical production of theatre and dance including: scenic, prop and costume construction, lighting, sound and video execution and management structures.

TDPS 258 Special Topics in Introductory Performing Arts (1-3) Prerequisite: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 9 credits if content differs. Designed for performing arts students. Offers instruction at the introductory level in various aspects of performance such as Voice for the Performing Arts, Movement for the Performing Arts, Acting for the Performing Arts, Partner Dance and a myriad of specific aspects within these genres.

TDPS 358 Special Topics in Intermediate Performing Arts (1-3) Prerequisite: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 9 credits if content differs. Designed for performing arts students. Offers instruction at the intermediate level in various aspects of performance such as Voice for the Performing Arts, Movement for the Performing Arts, Acting for the Performing Arts, Partner Dance and a myriad of specific aspects within these genres.

TDPS 362 Alexander Technique (1-3) Prerequisite: THET222, THET116, THET223, and TDPS201; or (DANC218 and DANC219). And permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET399J, THET362 or TDPS362. Formerly: THET399J and THET362. Based on the F.M. Alexander Technique, students will learn to recognize habit patterns that interfere with how they function and express themselves so that they can make conscious choices as a performing artist.

TDPS 458 Special Topics in Advanced Performing Arts (1-3) Prerequisite: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 9 credits if content differs.

Designed for performing arts students. Offers instruction at an advanced level in various aspects of performance such as Voice for the Performing Arts, Movement for the Performing Arts, Acting for the Performing Arts, Partner Dance and a myriad of specific aspects within these genres.

TDPS 469 Advanced Practicum in Stage Management (1-3) Prerequisite: Minimum of 2 credits from TDPS479. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. A graded course in stage management for theatre and/or dance productions. A hands-on laboratory experience.

TDPS 470 Production Management (3) Prerequisite: TDPS201, THET222, THET223, and THET116; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: TDPS458D or TDPS470. Formerly: TDPS458D. To familiarize students with techniques and skills required of a Production Manager in a theatrical production. Focus will also be given to the field of event management.

TDPS 479 Production Practicum (1-3) Prerequisite: TDPS201. Repeatable to 10 credits if content differs. Credit only granted for: TDPS479 or THET479. Formerly: THET479. A graded course in a specified practical aspect of mounting a theatre or dance production. It is a hands-on, purely laboratory experience.

THET -- Theatre

THET 110 Introduction to the Theatre (3) In the age of pop music and blockbuster films, of memes and viral videos, we often forget that theatre was one of the original forms of popular entertainment. We will focus on theatre practitioners including actors, directors, designers and backstage personnel to understand how theatre is produced. We will also consider popular entertainment in Europe and America, with a particular focus on musical theatre and Broadway to explore how theatre communicates, resonates, and remains relevant to all audiences.

THET 116 Fundamentals of Theatrical Design (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Examines theatre as an environmental art that is realized through collaboration between set, costume, and lighting designers.

THET 120 Introduction to Acting (3) Restriction: Must not be in Theatre program. Through scene study, exercises, and improvisation, an appreciation is developed for the working habits of actors, which will aid them in rehearsal as well as performance.

THET 199 Independent Study (1-3) Restriction: Permission of instructor; and freshman standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic, lighting, or costume designs, or a stage production.

THET 210 Movement for Actors (3) Prerequisite: TDPS201, THET116, THET222, and THET223; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Focuses on increasing a performer's presence on stage. Will include the F.M. Alexander technique, movement improvisation, exercises for balance, strength, flexibility and stamina.

THET 222 Foundations of Acting and Performance (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Students will become familiar with the tools and

process of acting through the discipline of acting exercises, analyzing character and performing. Students will research various theatre artists that have contributed to the acting process. Through monologue and scene work students will learn listening skills, communicative, collaborative and embodiment skills and will learn how to use the self in the imaginative process and research. And, most importantly, students will learn creative process through practice.

THET 223 Text and Context in Western Theatre (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Introduction to the analysis and critique of the play script. Students will have the opportunity to read, analyze, and interpret western dramatic literature from a range of periods and styles. Texts are analyzed from a variety of theatrical analytical perspectives, with an eye towards choices theatre artists must make in the creation of a theatrical production.

THET 228 Special Topics in Introduction Theatre and Performance (1-3) Prerequisite: THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 3 credits if content differs. This course is offered as part of the TDPS Artist-in-Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.

THET 250 American Musical Theatre and Popular Culture (3) Credit only granted for: THET250 or THET350. Formerly: THET350. An exploration of the complicated history of some of America's most popular entertainments from learned pig shows, to vaudeville, to musical theatre. It connects the history of America's diverse racial and ethnic communities to the evolution of forms like minstrels, Wild West Shows, and showboat theatre. It also traces the history of our most popular and enduring art form--the musical comedy--from the Ziegfeld Follies to Rent and beyond.

THET 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

THET 273 Theatre Graphics I (3) Prerequisite: THET116, THET114, or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. An introduction in graphic techniques for theatrical design and production. The emphasis is on drafting by hand, with an introduction to computer-aided drafting and design.

THET 274 Introduction to Stage Management (3) Prerequisite: THET114 or TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Familiarization with the techniques and skills required of a Stage Manager in a theatrical production, including organization, production meetings, rehearsals, tech and running a show. The outcome at the conclusion of the course is the ability to function as an Assistant Stage Manager in a supervised situation.

THET 279 Theatre Workshop I (1) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Supervised participation in backstage staffing of University Theatre productions.

THET 282 Stage Makeup (3) Students learn to design and execute character makeup based on research and script analysis. Studying fundamental facial anatomy, the class learns to manipulate light and shadow with makeup to enhance and alter the shape of facial features. Once these techniques are mastered, the class moves on to more complex exercises, including Old Age, Facial Hair, Wounds and Fantasy.

THET 284 Stage Costume Construction I (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Study and practical experience in garment construction and

related costume crafts as used in theatre costume design. Flat pattern development, corset construction, theatrical sewing techniques and organization of the costume construction process.

THET 285 The Art of Communication and Presentation (3) Credit only granted for: COMM107, COMM200, INAG110, JOUR130, or THET285. An introduction to the fundamental practice and theory of public speaking and oral communication using theatrical techniques of both performance and the craft of storytelling.

THET 286 Experiential Learning I (1-3) Prerequisite: THET222, THET223, and THET116. And THET114; or TDPS201. And permission of ARHU-School of Theatre, Dance & Performance Studies department. Introductory internship in theatre. Constructed to help students in their sophomore year gain practical experience in a supportive work environment in the theatre. Student must research and propose internship to a Faculty Advisor and Internship Venue.

THET 287 Subversive Cultures and Performance (3) Credit only granted for: THET289I or THET287. Formerly: THET289I. Every society has rebels - those who refuse to conform to the mainstream's rigid rules, aesthetics, and beliefs. From unruly skateboarders, punk rockers, bohemian poets, and radical theater performers, to national revolutionary movements and brick-throwing anarchists - such groups form niches that are defined by their exclusion from society. We will look at how their beliefs and actions fit into a particular historical context, and how their actions drive social change.

THET 290 Race, Gender, and Ethnicity in American Theatre and Culture, 1750-1900 (3) Since the first colonial encounter with the indigenous peoples of the Americas, complex issues of race, gender, and ethnic identity have shaped our collective efforts to engage, interact, and survive as a new nation. Our cities, our monuments, our homes, are all built on the bodies of the dead and our landscapes are haunted by those who left work unfinished the work of women's rights, religious freedom, racial tolerance, and many other compelling concerns of class, gender, and ethnic identity. This class explores how theatre engaged with these complex issues; it covers the period 1750-1900.

THET 291 American Theatre 1890-Present (3) Traces the evolution of the American theatre during the twentieth century, aligning this theatre with the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture of today.

THET 293 Black Theatre and Performance I (3) Restriction: Sophomore standing or higher. Thematic and historical survey of African-American drama from the late nineteenth century to the 1960s. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

THET 294 Black Theatre and Performance II (3) Restriction: Sophomore standing or higher. Thematic and historical survey of African-American drama from the 1960s to the present. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

THET 299 Independent Study (1-3) Restriction: Permission of instructor; and sophomore standing or higher. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers; scenic, lighting, or costume designs; or a stage production.

THET 310 Voice for the Actor I (3) Prerequisite: THET116, THET222, THET223, and TDPS201; and must Interview; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

Restriction: Sophomore standing or higher. Freeing the natural voice. In-depth experience of connection of actor's voice to thought, impulse and emotion. Tools for releasing tension, increasing resonance and range, and refining articulation will be explored.

THET 324 Character Development (3) Prerequisite: Must have completed or be concurrently enrolled in THET310 and THET362; or permission of Instructor. And must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. European-based physical approach to acting. Primary focus on character development, may include creating original characters and learning how to bring to life an already scripted character. Techniques to explore the soul and psychology of characters and their physical qualities, voice, rhythm and movement.

THET 325 Actor's Process I (3) Prerequisite: Must have completed or be concurrently enrolled in THET310; or permission of Instructor. And must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Focus on use of self in creating character. Tools employed include decision-making and use of imagery, personalization, objectives, adjectives, and verbs.

THET 326 Viewpoints (3) Prerequisite: THET222, THET223, THET116, and TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET328V or THET326. Formerly: THET328V. Viewpoints is a movement-based performance course for students who already have a foundation in the basics of acting and/or dance. The Viewpoints are a set of tools and vocabulary; using 9 categories of time and space, students will fully explore the possibilities of using their physical instruments (the body) to their fullest on stage.

THET 328 Special Topics in Intermediate Theatre and Performance (1-3) Prerequisite: THET222, THET223, and THET116; and (THET114 or TDPS201); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. Repeatable to 3 credits if content differs. Topics covered include: Intercultural Theatre, Performance Art, Puppetry, Solo Performance, or Theatrical Design.

THET 330 Play Directing I (3) Prerequisite: THET222, THET223, and THET116. And THET114; or TDPS201. And permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. A lecture-laboratory course dealing with the techniques of coordinating, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.

THET 360 Voice Archetypes (3) Prerequisite: THET310 and THET362; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET360 or THET399Z. Formerly: THET399Z. The student will learn how to apply archetypal characters and expand performance potentialities, increase vocal self knowledge, discover rhythms, pitch variations, and sounds that reflect inner states of being.

THET 363 The Business of the Business (3) Prerequisite: THET116, THET222, THET223, and TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET399B or THET499E or THET363. Formerly: THET399B, THET499E. An in depth study of the business of working in the theatre. Explores early career opportunities and entry-level positions in the entertainment industry. Analyzes publicity, management, union, casting, and agency practices; how they apply to you and your career in the non-profit and commercial theatre.

THET 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

THET 371 Scenic Design I (3) Prerequisite: THET222, THET223, and THET116; and (THET114; or TDPS201). Or permission of ARHU-School of Theatre, Dance & Performance Studies department. A study of design theory and style. Methods and techniques of coordination of all elements of scenic design for theatre.

THET 372 Stage Property Design (3) Prerequisite: THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Materials and techniques for the design and execution of stage properties with special emphasis on period research, special materials, and special effects.

THET 373 Rendering for the Theatre I (3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. A study in the techniques and tools of drawing and painting. It is designed for the student to develop rendering and drawing skills for theatrical design presentation.

THET 377 Lighting Design I (3) Prerequisite: THET222, THET223, and THET116. And THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. A study of the theories of electrification, instruments, design, color, and control for the stage. Practical work on productions.

THET 380 Sound Design (3) Prerequisite: THET116. And THET114; or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Sophomore standing or higher. Theatre Sound Design is a first course in designing sound for stage productions.

THET 383 Costume Design I (3) Prerequisite: TDPS201 or THET114; and (THET116, THET222, and THET223). Or permission of ARHU-School of Theatre, Dance & Performance Studies department. Basic principles of theatre costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

THET 384 Stage Costume Construction II (3) Prerequisite: THET284; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET384 or THET487. Formerly: THET487. Study and practical experience in the construction of stage costumes, props and accessories. Pattern development by draping, millinery, and crafts.

THET 385 Media Design (3) Prerequisite: THET222, THET223, THET116, and TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET399D or THET385. Formerly: THET399D. Focuses on learning the grammar and conceptual thinking behind multimedia design for live performance. Students will learn how our new multimedia tools can enhance the sense of liveness as well as explore the different ways in which technology can be implemented into preproduction thinking, rehearsal experimenting, and ultimately, effective use in performance.

THET 386 Experiential Learning (3-6) Restriction: Junior standing or higher; and permission of ARHU-School of Theatre, Dance & Performance Studies department.

THET 388 Special Topics in Performance Studies (3) Prerequisite: THET222, THET223, THET116, THET114, or TDPS201; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Sophomore standing or higher. Repeatable to 6 credits if content differs.

Performance Studies is a broad discipline that offers strategies for exploring diverse texts from diverse perspectives. Students are encouraged to explore critical and practical approaches to research and performance, including the History and Practice of Festivals and Carnival Performances, Comedy, Performance in Everyday Life, Contemporary Theatre at the Margins, and Stage Adaptation.

THET 390 History of Theatre I (3) Prerequisite: Permission of ARHU-School of Theatre, Dance & Performance Studies department. The history of Western theatre from its origins in classical antiquity through the mid-seventeenth century with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Includes explorations of interrelationships between Western theatre and the theatre of other cultures.

THET 391 Theatre History II (3) Prerequisite: Permission of ARHU-School of Theatre, Dance & Performance Studies department. The history of Western theatre from the mid seventeenth century to the early twentieth century, with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Includes explorations of interrelationships between Western theatre and the theatre of other cultures.

THET 399 Independent Study (1-3) Restriction: Permission of instructor; and junior standing or higher. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate in term papers, scenic; lighting, or costume designs; or a stage production.

THET 408 Seminar: Theory and Performance Studies (3) Repeatable to 6 credits if content differs. Also offered as: THET608. Credit only granted for: THET408 or THET608. Studies in theatre theory and performance studies from classical antiquity to the present.

THET 410 The American Theatre (3) Prerequisite: THET488 or THET489; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Senior standing. Also offered as: THET610. Credit only granted for: THET410 or THET610. The American theatre from 1750 to 1950, including the position of theatre in culture, its typical features, and major artists.

THET 411 Voice for the Actor II (3) Prerequisite: THET324 or THET325; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. Credit only granted for: THET311, THET411, or THET499L. Formerly: THET311. Learn the International Phonetic Alphabet (IPA) and apply to exploration of sound and language. Designed to increase voice and speech awareness, and create a base knowledge from which to approach any accent or dialect.

THET 420 Language and the Actor (3) Prerequisite: THET325 or THET324; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Explores the actor's relationship to language, particularly heightened poetic language, in order to: develop the ability to embody language and vocally and physically project the images; apply an intellectual understanding of the inherent structural, poetic, and rhetorical techniques of heightened language in combination with action theory; and access the inner states of character while expressing them through text.

THET 424 Movement II: Advanced Studies in Movement and Mask Theatre (3) Prerequisite: THET325 or THET324; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. A deeper exploration of how to use the actor's instrument for dramatic expression. Continuing work in the F.M. Alexander Technique and foundational

exercise to help actors learn what they need to prepare for rehearsal and performance. Other techniques may include theatrical styles, physical character, dramatic use and play with space and rhythm and masks.

THET 425 Actor's Process II (3) Prerequisite: THET325; and must audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. A deeper exploration of the work begun in THET325. A continuation of creating a personal process through which the actor can confidently approach any genre of play. Special focus on status and subtext and the world of the playwright.

THET 426 Theatrical Clown (3) Prerequisite: THET324 or THET325; and must Audition. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET426, THET499C or THET 499O. Formerly: THET499C, THET499O or THET426. Progression of developing individual clown characters through methods based on European pedagogy which emphasizes a physical and technical approach to actor training.

THET 428 Special Topics in Advanced Theatre and Performance (1-3) Prerequisite: THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Junior standing or higher. Repeatable to 3 credits if content differs. Additional information: Incorporate the change from THET 114 to TDPS 201, listing both numbers, as students will take the prerequisite under either number. To change the catalog description to reflect the proper unit name as the School of Theatre, Dance, and Performance Studies. This course is offered as part of the School of Theatre, Dance, and Performance Studies' Artist in Residence program. Topics covered may include: Intercultural Theatre; Performance Art; Puppetry; Solo Performance; or Theatrical Design.

THET 429 Actor's Studio (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. Participation in dramatic roles executed under faculty supervision in the department's productions. Eligible students must make commitments and plan performances with course instructor during pre-registration.

THET 430 Directing II: Working with Actors (3) Prerequisite: THET330; and (THET324 or THET325); and must Audition; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Discussion of the preparation procedures and rehearsal practices necessary for the presentation of a variety of theatrical styles and forms. Emphasis on understanding the relationship between the director, the actor, the script and the audience. A series of student directed scenes supplemented by attendance at theatre productions.

THET 435 Advanced Costume Construction (3) Prerequisite: THET284 and THET384; and portfolio review; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET635. Credit only granted for: THET435, THET499K, THET635, or THET669K. Formerly: THET499K and THET669K. The course is taught in a presentation/practical application format. Students will learn advanced techniques in draping and pattern development and develop proficiency in communication of design and construction choices.

THET 440 Advanced Playwriting (3) Prerequisite: THET340; or permission of instructor. And permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET440 or THET499P. Formerly: THET499P. Ensemble-based writer's workshop. It is the second part of a two-course sequence and is designed for students who already have a foundation in the basics of playwriting or who are other wise well-versed in the art of theatre and dramatic structure. Through

exploratory writing sequences, the reading of full-length plays, and in-class readings of work-in-progress, students will continue to deepen their craft and develop the script for a new full-length play.

THET 451 Musical Theatre Workshop I (3) Prerequisite: Must audition. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Development of the ability to move, act and express through the media of lyric and music.

THET 452 Musical Theatre Workshop II (3) Prerequisite: Must audition. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Development of the ability to move, act and express through the media of lyric and music from the integrated musicals of the 1960s through the development of concert and rock/pop musicals.

THET 457 Advanced Lighting Technology (3) Prerequisite: THET377. Restriction: Sophomore standing or higher. Technological innovations such as moving lights, color changers, and LED are studied from the lighting designer's perspective. Students will have the opportunity to use the equipment in the lighting lab.

THET 464 Design Studio Costume (3) Prerequisite: THET383; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Credit only granted for: THET464 or THET649. Intermediate and advanced principles of theatrical costume design rendering skills. Emphasis on development of design concept, unity, character statement, and research. Particular design projects will vary.

THET 465 History of Fashion for the Theatre (3) Prerequisite: THET116; or permission of instructor. Restriction: Sophomore standing or higher. A survey of Western clothing from the Ancient Worlds through 20th Century. A discussion of the cultural contexts of various trends in fashion through an examination of art, industry and textiles.

THET 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

THET 470 Advanced Stage Craft (3) Prerequisite: THET114 or TDPS201; or permission of instructor. An introduction in technical design and management. Topics include rigging, structural mechanics, and construction in materials other than wood.

THET 471 Design Studio in Scenery (3) Prerequisite: THET371; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET639. Credit only granted for: THET471 or THET639. Advanced study of scenic design for the theatre. Particular design projects will vary.

THET 472 Scene Painting (3) Prerequisite: THET114 or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. Scene painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional projects.

THET 474 Advanced Stage Management (3) Prerequisite: THET114 or TDPS201; and (THET116, THET222, THET223, and THET274); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department; and sophomore standing or higher. Intensive practical study of the techniques and procedures for stage management.

THET 475 History of Art, Architecture, and Decor for the Theatre (3) Prerequisite: THET114 or TDPS201; and (THET116, THET222, and THET223); and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET670. Credit only granted for: THET475 or THET670. Study of Western art, architecture, and decor and their practical application to theatrical production.

THET 477 Design Studio in Lighting (3) Prerequisite: THET377; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Also offered as: THET659. Credit only granted for: THET477 or THET659. Designed for students who have successfully completed THET377 and wish to further develop their lighting design skills. Emphasis is on theoretical design of productions and realized light lab projects. Particular design projects will vary.

THET 479 Production Practicum (1-3) Prerequisite: THET116 and THET114; and permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits if content differs. Designed to expand students' practical knowledge and skills through working on Department of Theatre productions.

THET 480 Audio Technology (3) Prerequisite: THET114 or TDPS201; or permission of ARHU-School of Theatre, Dance & Performance Studies department. First technical course in the installation and operation of professional sound systems. This course explores current standards of both analog and digital audio theory as well as recording and reinforcement techniques.

THET 481 Theatre Graphics II: Computer Assisted Design (3) Prerequisite: THET114 or TDPS201; and THET116; and permission of ARHU-Theatre department. Restriction: Sophomore standing or higher. Study and practical application of computer generated graphical design for use in theatrical production.

THET 482 Scene Painting II (3) Prerequisite: THET472; or permission of instructor. Restriction: Sophomore standing or higher. Advanced study of theatrical scenic painting.

THET 486 History of Modern Theory & Performance (3) Prerequisite: THET488 or THET489; or permission of instructor. Also offered as: THET686. Credit only granted for: THET486 or THET686. Modern dramatic and performance theory from realism to the absurd with special emphasis on the European and American avant-garde.

THET 488 Special Topics in Theatre History Before 1800 (3) Repeatable to 6 credits if content differs. Topics in the history of world theatre and performance from the Greeks through 1800.

THET 489 Special Topics in Theatre History from 1800 to Present (3) Repeatable to 6 credits if content differs. Topics in the history of world theatre and performance from 1800 to present.

THET 497 Non-Traditional Theatre (3) Seminar exploring American and European experimental performance since 1960. Topics include experimental theatre, performance art, pornography and performance, gender and performance, and popular culture and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

THET 498 Seminar: Theatre History (3) Prerequisite: THET488 or THET489. Restriction: Senior standing; and permission of instructor. Repeatable to 6 credits if content differs. Also offered as: THET698. Credit only granted for: THET498 or THET698. Studies in theatre history from classical antiquity to the present.

THET 499 Independent Study (1-3) Restriction: Permission of ARHU-School of Theatre, Dance & Performance Studies department. Repeatable to 6 credits. An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production.

TLPL -- Teaching and Learning, Policy and Leadership

TLPL 101 Inquiry Teaching of STEM in Elementary School (1) Additional information: Attendance at each class session will be vital to student success in the course. To complete the observations and lessons, students must allow a three-hour block of time during the local elementary school operational hours from 7:45 am to 3:15 pm. A background check is required. Exploration of teaching science or mathematics as a career. Discussions include standards-based lesson design and various teaching strategies. Fieldwork consists of observing, planning and teaching inquiry-based lessons to students in grades three to six in local elementary schools.

TLPL 102 Inquiry Teaching of STEM in Middle School (2) Prerequisite: Must have completed TLPL101. Additional information: Attendance at each class session will be vital to student success in the course. To complete the observations and lessons, students must allow a three hour block of time during the local middle school operational hours from 7:45 am to 3:15 pm. A background check is required. Second course in the Terrapin Teachers teacher preparation sequence. Students gain field experience and continue exploring teaching as a career by conducting teacher observations, and planning and implementing lessons in local, high-need middle school classrooms. Students work closely with UM master teachers to build upon the inquiry-based teaching practices developed in TLPL 101. Students work with mathematics and science curricula while attending to state and district standards, in order to develop and enact lessons that are responsive to students' reasoning in math and science.

TLPL 306 Arts Integration in Elementary Classrooms (3) Corequisite: EDCI322, EDCI362, EDCI397, and EDCI489. Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching, Learning, Policy and Leadership department. An exploration of the theories and core practices associated with integrating the arts in ways that promote student learning in the core subjects.

TLPL 418 Teaching Residency (3-9) Prerequisite: Must have completed or be concurrently enrolled in TLPL352, TLPL363, TLPL372, TLPL415. Restriction: Restricted to Elementary Education majors with permission of the Department. 2.75 GPA required. Repeatable to 12 credits. Credit only granted for: TLPL418 or EDCI481. An extended teaching internship in an Elementary Professional Development School. School placements to be arranged.

TLPL 446 Language Variation and Multilingualism in Elementary Classrooms (3) Restriction: Must be in Elementary Education program; and minimum cumulative GPA of 2.75. Or permission of EDUC-Teaching and Learning, Policy and Leadership department. Issues in language variation and multilingualism in elementary classrooms, schools and communities with a focus on classroom practice, assessment, and policy.

TLTC -- Teaching and Learning Transformation Center

TLTC 333 Fundamentals of Academic Peer Mentoring (1) Restriction: Permission of TLTC required - enrollment restriction. How should scientific research influence the way we study and advance the academic performance of others? Learn about the scholarship of teaching and learning and develop the

applied skills to support active learning as an academic peer mentor. Whether or not you are ultimately pursing a career as an educator, the more effectively you can coach and support the performance of other people, and the more successful you will be. Guided online and face-to-face participation will culminate in a portfolio of your teaching activities and professional development.

TLTC 399 Independent Study in Academic Peer Mentoring (1-3) Prerequisite: Must have completed or be concurrently enrolled in TLTC333. Restriction: Permission of TLTC required - enrollment restriction. Repeatable to 6 credits. Earn academic credit for the time spent supporting a course in TLTC's Academic Peer Mentoring Program (AMP).

UMEI -- Maryland English Institute

UMEI 001 English as a Foreign Language: Beginning (12) Restriction: Permission of EDUC-Dean-Maryland English Institute department. Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Focus on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing appropriate to the level will be included. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 002 English as a Foreign Language: Intermediate I (12) Restriction: Permission of EDUC-Dean-Maryland English Institute department. Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills, on mastering intermediate grammatical structures, and on expanding vocabulary. Includes practice in reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 003 English as a Foreign Language: Intermediate II (12) Restriction: Permission of EDUC-Dean-Maryland English Institute department. Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations, on rapid expansion of vocabulary, and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 004 English as a Foreign Language: Intermediate III (12) Restriction: Permission of EDUC-Dean-Maryland English Institute department. Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills, on improving reading speed and comprehension of academic texts, and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 005 Advanced English as a Foreign Language (6) Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills; improvement of reading speed and comprehension; and development of writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 011 Integrated English: Elementary (5) Prerequisite: Placement exam; and permission of EDUC-Dean-Maryland English Institute department. English as a Second Language course for students at the elementary level.

UMEI 012 Integrated English: Intermediate (5) Prerequisite: Placement exam; and permission of EDUC-Dean-Maryland English Institute department. English as a Second Language course for students at the intermediate level.

UMEI 013 Integrated English: Advanced (5) Prerequisite: Placement exam; and permission of EDUC-Dean-Maryland English Institute department. English as a Second Language for students at the advanced level.

UMEI 028 Special Topics in English as a Second Language (1) Repeatable to 18 credits if content differs. Focuses on particular English language topics for ESL student as indicated by title. Course intended to be taken concurrently with UMEI011, UMEI012, or UMEI013; but may be taken independently with special permission.

UNIV -- University Courses

UNIV 099 Internship Seminar () Restriction: Must have earned a minimum cumulative GPA of 2.0 (undergraduates) or 3.0 (graduate students); and permission of the Career Center; and permission of instructor. Complements students' supervised work experiences. Open to all majors; all class levels. Involves exploring career options, developing professional work skills, examining the relationship between internship and academic coursework. Course may be repeated.

UNIV 100 The Student in the University (1) Credit only granted for: EDCP108O or UNIV100. Formerly: EDCP108O. Introduces students to University life. In a small classroom setting, students will explore how to successfully bridge the gap between high school and college. Study skills, career decision-making, and student development processes will be explored.

UNIV 101 The Student in the University and Introduction to Computer Resources (2) Introduces students to University life and current computer resources. In a small classroom setting, students will explore the world of higher education and current technological advances available to them. Additionally students will explore current resources both internal and external to the University, and how to utilize the World Wide Web as a research tool.

UNIV 102 Confidence Building and Study Skills in Mathematics (2) Restriction: Must be in uTerp Individual Admits program. A mathematics preparatory class designed to facilitate a student's transition toward fundamental studies mathematics, including study skills and strategies for success.

UNIV 103 Making a Successful Transition to University Life (1) Restriction: Must be in uTerp Individual Admits program. Credit only granted for: UNIV100 or UNIV103. A course designed to promote student awareness of university wide campus resources, and to assist students in their transition from high school to college.

UNIV 104 Reading and Writing at the College Level (1) Restriction: Must be in uTerp Individual Admits program. A workshop designed to enhance students' college level reading and writing abilities to include study skills and strategies for success.

UNIV 106 The Transfer Student in the University (1) Restriction: Must be a first-semester Letters and Sciences transfer student. Credit only granted for: UNIV106 or EDCP108G. For transfer students in Letters and Sciences. This course is designed to assist students in making a successful transition to the University of Maryland (UMD) and to serve as an extended orientation to campus living and learning.

UNIV 107 Science Technology Engineering Mathematics Colloquium (1) Restriction: Must be a current student in Letters & Sciences. For students interested in pursuing a STEM related major. Introduces students to the fundamentals of career and major exploration and career development within the various disciplines of STEM.

UNIV 108 Business Exploration Series Colloquium (1) Restriction: Must be a current student in Letters and Science. For students interested in pursuing a business career. Students learn the fundamentals of career development and what the internship/job search process entails.

UNIV 131 Cultural Studies: Self, Tribe and Country (1) This class will explore the role of culture in the human experience, and the skills necessary to work with diverse individuals and teams.

UNIV 218 Study Abroad Exploration (3) Restriction: Must be in designated Study Abroad programs. Repeatable to 6 credits if content differs. Topics and assignments will vary by travel site.

UNIV 269 Connecting Across Cultures (1) Restriction: Must be in a study abroad program. An examination of culture to guide study abroad students through the stages of cross cultural adjustment and to promote cultural competency by providing the motivation, knowledge and skills necessary to work with diverse individuals and teams.

UNIV 318 Special Topics in Study Abroad (3) Restriction: Must be in a designated Study Abroad program; and must not have six credits of CPSP379 if College Park Scholar student; and freshman standing or higher. Topics and assignments will vary by travel site, as indicated by subtitles such as Italian Art, Chinese History, and French Theater.

UNIV 325 Beyond the Classroom Seminar I: Civic Engagement and Social Change in a Global Context (3) Restriction: Must be in the Beyond the Classroom (BTC) living and learning program. Develops and applies the concept of civic engagement and strategies for enhancing civic engagement and advancing social justice in different contexts (global to local; multi-cultural). Develop students' leadership capacities and skills for fostering civil discourse and effective professional practices in the nonprofit and civil society sector. Students identify the key civic values, attitudes and expectations that motivate them personally as well as others to engage in civic action and leadership. Students prepare professional portfolios in preparation of a semester-long internship.

UNIV 326 Beyond the Classroom Seminar II (1) Prerequisite: UNIV325. Restriction: Must be in the Beyond the Classroom (BTC) living and learning program. Seminar for students in internships and service-learning experiences as context for applying communication skills and knowledge of civic engagement leadership skills first introduced in UNIV325. Must be taken concurrently with experiential learning practicum.

UNIV 339 McNair Research Methods and Writing (2-6) Restriction: Must have earned a minimum of 60 credits. As an introduction to qualitative and quantitative research methods, students will be taught how to: (1) create, analyze, and disseminate knowledge conceptually and empirically; (2) write a research document; (3) use the IRB process; (4) develop research posters; (5) read and evaluate research studies; (6) read and understand statistics; (7) conduct interviews, develop surveys, and design experiments; and (8) communicate effectively to public audiences.

UNIV 348 Federal Semester Seminar (3) Restriction: Must be in the Federal Semester program; and permission of UGST-Undergraduate Studies; and junior standing or higher. Repeatable to 6 credits if content differs. This topical seminar will approach Federal policy formation through a combination of

framework-based and content-specific considerations. Content and themes will vary. The Federal Semester is an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.

UNIV 349 Federal Semester Experiential Learning (1-6) Prerequisite: UNIV348. Restriction: Must be in the Federal Semester program; and must have a Learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor; and junior standing or higher. Repeatable to 6 credits if content differs. This is the internship component of the Federal Semester program, an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center.

UNIV 378 Beyond the Classroom Experiential Learning (1-3) Prerequisite: UNIV325. Restriction: Must be in the Beyond the Classroom program; and must have proposal approved by director of Beyond the Classroom. This is the internship component of the Beyond the Classroom program in which students hold internships at organizations such as governmental units and non-profit agencies.

UNIV 389 Special Topics in Undergraduate Studies (3) Restriction: Freshman standing. Repeatable to 6 credits if content differs. Courses will focus on interdisciplinary topics and will be planned in cooperation with Undergraduate Studies.

UNIV 399 Experiential Learning in Undergraduate Studies (1-3) Restriction: Must have a Learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor; and junior standing or higher. Repeatable to 6 credits if content differs. Experiential learning offered in conjunction with certain designated Office of Undergraduate Studies programs.

URSP -- Urban Studies and Planning

URSP 118 Selected Topics in Urban Planning (3) Repeatable to 9 credits if content differs. Selected Topic courses address particular issues relating to urban studies and planning. They are focused on specific areas of theory and practice as they relate to the study of urban areas.

URSP 250 The Sustainable City: Exploring Opportunities and Challanges (3) An exploration, through an interdisciplinary approach, of a number of issues related to making cities more sustainable in terms of environmental protection, economic opportunity, and social justice. The course assist students to develop skills in critical analysis and systems thinking and to use those skills in analyzing sustainability related problems and potential solutions, and to expand students' understanding of the political implications of crafting and moving towards a sustainable urban future.

URSP 372 Diversity and the City (3) Exploration of the different needs of diverse economic, racial/ethnic, and gender groups that live and work in cities, the historical background of differences, the impact of societal structures and group cultures, and how public and private policies do and can affect different groups.

URSP 399 Independent Study (1-3) Restriction: Junior standing or higher. Repeatable to 6 credits if content differs. Directed research and study of selected aspects of urban affairs.

URSP 488 Selected Topics in Urban Studies and Planning (1-3) Prerequisite: Permission of ARCH-Urban Studies & Planning Program department. Repeatable to 6 credits if content differs. Topics of special interest to advanced urban studies students.

USLT -- Latina/o Studies

USLT 201 U.S. Latina/o Studies I: An Historical Overview to the 1960's (3) Interdisciplinary course focusing on demographics, terminology and social constructs of race, class, ethnicity, indigeneity, gender, and sexuality associated with the historical and political roots of US Latinidades. Examines the formation, evolution an adaptation of US Latina/o communities as critical field of inquiry.

USLT 202 US Latina/o Studies II: A Contemporary Overview 1960's to present (3) Interdisciplinary course on emerging populations of Latinos in the 20th century with a focus on the multiple waves of latino immigration as a result of neocolonialism, imperialism, globalization and transnationalism. Examines the positioning of immigrant waves in the political, sociocultural and historical contexts of US Latinidades.

USLT 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

USLT 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

USLT 488 US Latina/o Senior Seminar (3) Recommended: USLT202 or USLT201. Restriction: Senior standing; and permission of instructor. Repeatable to 9 credits if content differs. A variable topics seminar that exposes students to interdisciplinary critical readings, writings, and research in U.S. Latina/o Studies. Interdisciplinary research methodologies are broadly addressed. Students will gain skills and practice in reading critical analytic texts and will develop writing skills.

USLT 498 US Latina/o Studies: Special Topics (3) Prerequisite: USLT202 or USLT201. Restriction: Junior standing or higher. Repeatable to 9 credits if content differs. Specific content to be announced when courses are offered.

WMST -- Women's Studies

WMST 200 Introduction to Women's Studies: Women and Society (3) An interdisciplinary study of the status, roles, and experiences of women in society. Sources from a variety of fields such as literature, psychology, history, and anthropology, focusing on the writings of women.

WMST 210 Love, Labor, and Citizenship: Women in America to 1880 (3) Also offered as: HIST210. Credit only granted for: HIST210 or WMST210. An examination of the economic, family, and political roles of colonial, slave, immigrant and frontier women in America from the pre-industrial colonial period through the early stages of nineteenth century industrialization and urbanization.

WMST 211 Women in America Since 1880 (3) Also offered as: HIST211. Credit only granted for: HIST211 or WMST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles, including those for women's rights, birth control, and civil rights.

WMST 212 Women in Western Europe 1750-Present (3) Also offered as: HIST212. Credit only granted for: HIST212 or WMST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the

demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

WMST 250 Introduction to Women's Studies: Women, Art and Culture (3) An examination of women's creative powers as expressed in selected examples of music, film, art, drama, poetry, fiction, and other literature. Explores women's creativity in relation to families, religion, education, ethnicity, class, sexuality, and within a cultural tradition shaped by women.

WMST 255 Reading Women Writing (3) Also offered as: ENGL250. Credit only granted for: WMST255 or ENGL250. Explores literary and cultural expressions by women and their receptions within a range of historical periods and genres. Topics such as what does a woman need in order to write, what role does gender play in the production, consumption, and interpretation of texts, and to what extent do women comprise a distinct literary subculture. Interpretation of texts will be guided by feminist and gender theory, ways of reading that have emerged as important to literary studies over the last four decades.

WMST 263 Introduction to Black Women's Studies (3) Credit only granted for: WMST298A, AASP298I, or AASP298S. Formerly: WMST298A. Interdisciplinary exploration of Black women, culture and society in the United States. Drawn primarily from the social sciences and history with complementary material from literature and the arts.

WMST 265 Constructions of Manhood and Womanhood in the Black Community (3) Investigates the ways that African Americans are represented and constructed in public and private spheres and explores the social constructions and representations of Black manhood and womanhood from various disciplinary perspectives.

WMST 267 Introduction to Black Women's Cultural Studies (3) Credit only granted for: WMST267 or WMST298A. Formerly: WMST298A. An introduction to black women's cultural production and to an understanding of how the social norms and ideals about women within black communities and in the larger society have shaped black women's own self-perceptions and behaviors and thus their cultural production.

WMST 269 Special Topics in Study Abroad II (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

WMST 275 World Literature by Women (3) Also offered as: CMLT275. Credit only granted for: WMST275 or CMLT275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

WMST 281 Women in German Literature and Society (3) Also offered as: GERM281. Credit only granted for: WMST281 or GERM281. A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

WMST 298 Special Topics in Women's Studies (1-3) Repeatable to 6 credits if content differs.

WMST 300 Feminist Reconceptualizations of Knowledge (3) Restriction: Permission of ARHU-Women's Studies department; and must be in Women's Studies program. An examination of how the interdisciplinary study of women and gender has generated new questions, challenged traditional methodologies and offered insights on the ways we come to learn, know, and teach. Explores the impact of feminist thinking on various disciplines.

WMST 314 Black Women in United States History (3) Restriction: Sophomore standing or higher. Also offered as: AASP313. Credit only granted for: AASP313, AASP498W, HIST329E, WMST314, or WMST498N. Formerly: WMST498N. Black American women's history from slavery to the present. Focused on gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social-change agents.

WMST 319 Workshops in Women's Studies (1-3) Repeatable to 9 credits if content differs. Special topics courses with emphasis on interdisciplinary and collaborative approaches.

WMST 320 Women in Classical Antiquity (3) Also offered as: CLAS320. Credit only granted for: CLAS320 or WMST320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis on women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

WMST 325 The Sociology of Gender (3) Prerequisite: 3 credits in SOCY courses. Also offered as: SOCY325. Credit only granted for: SOCY325 or WMST325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

WMST 326 Biology of Reproduction (3) Prerequisite: BSCI170 and BSCI171; or BSCI105; or permission of ARHU-Women's Studies department. Also offered as: BSCI342. Credit only granted for: BSCI342 or WMST326. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.

WMST 336 Psychology of Women (3) Prerequisite: PSYC100. Also offered as: PSYC336. Credit only granted for: PSYC336 or WMST336. A study of the biology, life span development, socialization, personality, mental health, and special issues of women.

WMST 348 Literary Works by Women (3) Prerequisite: Must have completed at least one lower-level English literature course and one other lower-level English course; or permission of ARHU-Women's Studies department. Repeatable to 6 credits if content differs. Also offered as: ENGL348. Credit only granted for: ENGL348 or WMST348. The context, form, style and meaning of literary works by women.

WMST 350 Feminist Pedagogy (6) Restriction: Permission of ARHU-Women's Studies department. General application of feminist methodology to teaching and communication skills, teaching strategies, motivation, classroom dynamics and knowledge of students' development and learning styles.

WMST 360 Caribbean Women (3) An interdisciplinary analysis of the lives and experiences of women across the Caribbean region, through an examination of their roles in individual, national, social and cultural formations. Special emphasis on contemporary women's issues and organizations.

WMST 369 Special Topics in Study Abroad III (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

WMST 370 Black Feminist Thought (3) Prerequisite: 1 course in AASP; or 1 course in WMST. Examines the ideas, words and actions of Black women writers, speakers, artists, and activists in the United States.

WMST 379 Topics in Women's Studies (1-3) Repeatable to 9 credits if content differs. Thematic exploration of a topic in women's studies.

WMST 380 Feminist Analysis of the Workplace (6) An examination of the world of work from a feminist perspective through theory and experience. Designed to provide students with experiences in work situations that have social, economic, educational and/or political impact on women's lives. Students will develop the skill to theoretically analyze their experience and practically implement feminist models in the workplace.

WMST 386 Experiential Learning (1-6) Restriction: Must have Learning Proposal approved by Women's Studies Academic Advisor; and junior standing or higher.

WMST 400 Theories of Feminism (3) Prerequisite: 1 course in WMST; or must have completed a course cross-listed with a WMST course. A study of the multiplicity of feminist theories which have been developed to explain women's position in the family, the workplace, and society. Major feminist writings are considered in the context of their historical moment and in the context of the intellectual traditions to which they relate.

WMST 408 Literature by Women Before 1800 (3) Prerequisite: Must have completed two English courses in literature; or permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Also offered as: ENGL408. Credit only granted for: ENGL408 or WMST408. Selected writings by women in the medieval and early modern era.

WMST 410 Women of the African Diaspora (3) Explores the lives, experiences, and cultures of women of Africa and the African diaspora--African-America, the Caribbean, and Afro-Latin America. A variety of resources and materials will be used providing a distinctive interdisciplinary perspective.

WMST 420 Asian American Women: The Social Construction of Gender (3) Also offered as: AAST420. Credit only granted for: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class, produce and reproduce inequality within the lives of Asian American women.

WMST 425 Gender Roles and Social Institutions (3) Credit only granted for: SOCY425 or WMST425. Relationship between gender roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of gender roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing gender roles affect social institutions.

WMST 444 Feminist Critical Theory (3) Prerequisite: WMST200, WMST250, or ENGL250. Also offered as: ENGL444. Credit only granted for: ENGL444 or WMST444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

WMST 448 Literature by Women of Color (3) Prerequisite: Must complete two English courses in literature; or permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Also offered as: ENGL448. Credit only granted for: ENGL448 or WMST448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

WMST 452 Women in the Media (3) Also offered as: JOUR452. Credit only granted for: JOUR452 or WMST452. Participation and portrayal of women in the mass media from colonial to contemporary times.

WMST 453 Victorian Women in England, France, and the United States (3) Also offered as: HIST493. Credit only granted for: HIST493 or WMST453. Examines the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards and women's rights.

WMST 454 Women in Africa (3) Credit only granted for: HIST494 or WMST454. The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child rearing; ritual markers in women's lives; women in the workplace; women's associates; women's health issues; measures designed to control women's behavior; women and development.

WMST 455 Women in Medieval Culture and Society (3) Also offered as: HIST495. Credit only granted for: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

WMST 456 Women and Society in the Middle East (3) Recommended: Prior coursework in Middle East studies or gender studies. Also offered as: HIST492. Credit only granted for: HIST492 or WMST456. Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.

WMST 457 Redefining Gender in the U.S., 1880-1935 (3) Also offered as: HIST433. Credit only granted for: HIST433 or WMST457. Exploring changing perceptions of gender in the U.S., 1880-1935, and the impact of those changes on the day to day lives of men and women.

WMST 458 Literature by Women After 1800 (3) Prerequisite: Must have completed two English courses in literature; or permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Also offered as: ENGL458. Credit only granted for: ENGL458 or WMST458. Selected writings by women after 1800.

WMST 468 Feminist Cultural Studies (3) Repeatable to 9 credits if content differs. Each version of this course focuses on one or several forms of popular culture -- such as TV, music, film, cyber-culture, or genre fiction (for example, science fiction) -- and demonstrates how feminists value, critique and explain such forms. Tools of feminist cultural studies include economic and social analyses of power, race, sexuality, gender, class, nationality, religion, technology, and globalization processes.

WMST 469 Study Abroad Special Topics IV (1-6) Repeatable to 15 credits if content differs. Special topics course taken as part of an approved study abroad program.

WMST 471 Women's Health (3) Restriction: Must be in a major within ARHU-Women's Studies department; or must be in a major within SPHL-Behavioral & Community Health department. Also offered as: HLTH471. Credit only granted for: HLTH471 or WMST471. The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.

WMST 488 Senior Seminar (3) Restriction: Permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Seminar for advanced majors in women's studies or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

WMST 491 Judaism and the Construction of Gender (3) Prerequisite: 1 course in JWST; or 1 course in LGBT; or 1 course in WMST. Also offered as: JWST491. Credit only granted for: JWST419X, JWST491, or WMST491. The study of Jewish culture, religious practice, communal authority, and literature through the frame of such critical categories of analysis as gender, sexuality, masculinity, power, ethics, and the feminine.

WMST 494 Lesbian Communities and Differences (3) Prerequisite: 1 course in WMST. Recommended: WMST200 or WMST250. Also offered as: LGBT494. Credit only granted for: LGBT494 or WMST494. The meanings of lesbian communities across many lines of difference. Using lesbian-feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

WMST 496 African-American Women Filmmakers (3) Examines the cinematic artistry of African-American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

WMST 498 Advanced Special Topics in Women's Studies (1-3) Restriction: Permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs.

WMST 499 Independent Study (1-3) Prerequisite: 1 course in WMST. Restriction: Permission of ARHU-Women's Studies department. Repeatable to 9 credits if content differs. Research and writing or specific readings on a topic selected by the student and supervised by a faculty member of the Women's Studies Department.

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